THE

AMERICAN JOURNAL OF PHARMACY.

PUBLISHED BY AUTHORITY OF THE

PHILADELPHIA COLLEGE OF PHARMACY,

EDITED BY

JOHN M. MAISCH.

PUBLISHING COMMITTEE FOR 1872.

WILLIAM PROCTER, JR., CHARLES BULLOCK,
THOMAS S. WIEGAND, JAMES T. SHINN,
AND THE EDITOR.

VOLUME XLIV.

FOURTH SERIES, VOL. II.

PHILADELPHIA:
MERRIHEW & SON, PRINTERS,
No. 135 North Third Street.
1872.

VOL. XLIV.] [NO. I.

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NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

TERMS OF ADVERTISING.

One Six Three One One Six Three One

NOTICES.

The next Pharmaceutical meeting will be held at the College Hall, on TUESDAY, the 16th of January, at 3 o'clock P. M.

Members, students and others interested in Pharmacy are invited to attend, and to bring drugs, preparations or other objects of interest.

CLEMMONS PARRISH, *Registrar.*

At a meeting of the ZETA PHI SOCIETY, of the Philadelphia College of Pharmacy, held October 27th, 1871, it was resolved to change the form of the Society Badge.

The accompanying design was accepted at the succeeding meeting.

By order of the Society,

WALLACE PROCTER,
Secretary.

WANTED.

The Committee offer the publication price in money for the 4th number of the 1st volume, published January, 1830; for the complete 2d volume, commencing April, 1830; for the complete 3d volume, (1831;) for the complete 5th volume, (1833;) and for the complete 7th volume, commencing April, 1835. They will also be glad to receive and pay for the January and July numbers of 1857; for the March number, 1856; for the 37th volume, (1865;) and for the January numbers for 1866, 1867, and 1869, and the July and September number, 1870.

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NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 42 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

WILLIAM PROCTER, JR., ALFRED B. TAYLOR,
PROF. JOHN M. MAISCH, THOMAS S. WIEGAND,
CHARLES BULLOCK, *Committee.*

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ALBERT E. EBERT, cor. of Twelfth and State Streets, Chicago.

THE

AMERICAN JOURNAL OF PHARMACY.

JANUARY, 1872.

ILLUSTRATIONS OF SOME PHARMACEUTICAL PROCESSES AND APPARATUS,

As Exhibited to the Class in the Philadelphia College of Pharmacy.

By Prof. E. Parrish.

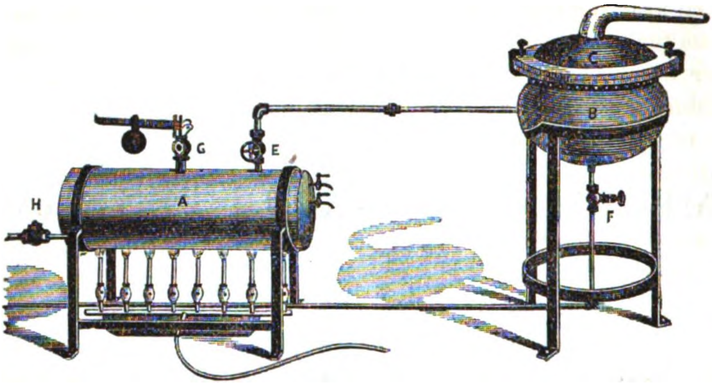
The illustration of a course of lectures in Pharmacy gives an opportunity for noting carefully details and results which in common practice are overlooked or, if observed, are not made public.

The processes detailed in this essay were conducted at the Philadelphia College of Pharmacy, in presence of the large class of students, with such facilities only as a lecture-room, with its counter, sink, hydrant, and gas-supply afford.

The energies of the lecturer being mainly directed to explanation and oral instruction, an assistant is employed in the management of the several processes simultaneously going on during the lecture; to his skilful assistant, Jos. P. Remington, the writer acknowledges himself indebted for useful suggestions, especially in the construction of the steam evaporating apparatus herein described.

Immediately after a statement of the scientific facts and principles pertaining to the generation and application of heat in pharmacy, the process of evaporation and the apparatus suitable for the preparation of extracts are brought into view, models and drawings are used for some, while evaporating dishes, sand-baths, steam-baths and water-baths are shown in actual use.

The annexed drawing shows a steam-boiler, evaporating pan and still-head constructed for the purposes of this course of instruction. A is a boiler of $\frac{1}{8}$ inch thick (No. 10 wire gauge), copper, 1 foot 9 inches long by 7 inches in diameter. It is held in position by a stout iron



frame, at an elevation of 12 inches, so as to allow of a stand of 8 Bunsen burners to be so placed as to spread a clean flame over the entire length of the bottom. Each of these burners has a tube ⅜ inch diameter and 5½ inches long. The water supply pipe, which is seen on the extreme left, is ½ inch in diameter, and has a valve at H which closes when not in use. The two small water-cocks are designed to ascertain the elevation of water in the boiler. A ⅜ inch steam pipe connects the boiler with the steam jacket.

The evaporating pan B, set in an iron frame 20 inches high, consists of a concave dish of tinned copper, 1 foot in diameter, 6 inches deep, with a steam jacket and a brass flange 1½ inch wide riveted on to it.

The dome, C, is of copper, and has a similar flange, by which it is designed to be clamped on to the evaporating pan when the apparatus is used for distillation. This junction is made steam tight by a coil of lamp wick interposed between the flanges. The drip pipe from the steam jacket empties into the adjacent sink; it is, for convenience, readily separable. The steam pipe being connected by a coupling the different parts of the apparatus may with facility be separated from each other. The gas burners are connected by elastic tubing with a T pipe in the counter.

The first preparation made in this apparatus was *Extractum Gentianæ*, U. S. P. The percolation was previously started in a cylinder of tinned iron, with a stop-cock attached. 96 troyounces (6 lbs. 9 oz. av.) of ground gentian, somewhat coarser than that which would pass through a No. 40 sieve, was macerated in sufficient cold water thoroughly to saturate it, then packed in the percolator and water added till about a gallon of dense percolate had passed. This was intro-

duced near the beginning of the lecture into the evaporating pan, and steam turned on. In a few minutes the liquid was in active ebullition; after boiling a short time it was removed and strained, but without yielding a precipitate of insoluble matter; the strained liquid returned was rapidly inspissated till the close of the lecture. The percolation continued yielded about two gallons additional of percolate, which with the first portion was evaporated in the interim to a soft pilular consistence, and the finished extract exhibited at the following lecture. The product weighed 2 lbs. 11 oz. av., = 41 per cent., which might have been somewhat increased if the percolation had been longer continued, though without profit. The gentian, at 16 cents per lb., which included the cost of powdering, cost $1.08; the fuel may be estimated as costing 36 cents. The extract, therefore, cost in the aggregate $1.44, = 52 cents per lb. It was of superior quality, of rich brown color, and with a decided odor of the root.

Extractum Jalapæ, U. S. P.

Two pounds, avoirdupois, of finely powdered jalap was moistened with six fluidounces of alcohol, sp. gr. ·835, and packed in a strong ten-inch glass funnel, which was suspended over a suitable receiving vessel. Alcohol was added till about four pints of tincture had passed; then water was gradually poured on, and its progress watched till it had nearly reached the perforated cork diaphragm fitted above the neck of the funnel. Another receiver was now substituted, and, the supply of water being kept up, 6 pints of aqueous percolate was received. The success of the last part of this process was more complete than was anticipated with so fine a powder of jalap, a perforated cork diaphragm of about 2 inches diameter being used, and the shape of the funnel favoring the swelling of the powder on the addition of water, without unduly compacting it, so that when the aqueous menstruum had begun to pass, the dropping continued moderately fast throughout. The quantity of menstruum, though less than that indicated in the Pharmacopœia, was limited to such amount as could be conveniently evaporated during the time at our disposal, and, as the result proved, gave a fair yield of extract.

At the second lecture on extracts the alcoholic percolate from the jalap was introduced into the evaporating pan, and the dome clamped on to it, as shown in the drawing; and to this a large glass Liebig's condenser was attached, and connected with the hydrant and sink by

elastic hose. Steam being generated, which occupied about ten minutes, the alcohol was rapidly recovered, and at the close of the lecture, the dome being removed from the pan, a dry mass of resinous extract was obtained, which weighed 6¾ oz. (av.) and 40 grs., nearly 21·4 per cent. of the jalap used. The alcohol had scarcely lost in quantity, but was not free from the odor of the drug. The aqueous percolate was evaporated to a syrupy consistence, after the lecture, removed from the pan, and divided into two equal parts. The resinous mass was dissolved in a pint of the recovered alcohol, and also divided into two equal parts. A half part of the resinous and aqueous liquids were now mixed, as directed in the process of the Pharmacopœia for the whole, and the mixture being evaporated gave 6¼ oz. of an excellent dry hydro-alcoholic extract.

Two pounds of jalap having been used, this quantity, being one-half the whole yield, represents the yield per pound = 39 per cent. The powdered jalap cost 65 cents per pound, the alcohol (half the quantity used) 55 cents, the heat, estimated, 20 cents, giving an aggregate cost of the 6¼ ounces, $1.40. Deducting alcohol recovered and useful for a similar process, 50 cents, we have a cost of 90 cents, or $2.14 the cost of a pound, less than half the market price of the best extractum jalapæ.

The object in setting aside half of the alcoholic solution of resinous extract was to ascertain the proportion it would yield of the officinal resina jalapæ. Accordingly, at the next lecture it was diluted to half a pint and added to 4 pints of water. The precipitate, washed by several portions of water, collected and dried, yielded 2 ounces of the officinal resina jalapæ, or 12½ per cent. of the jalap used. The cost of this was about 70 cents per ounce.

The question of economy in evaporation is of practical interest in connection with the preparation of these extracts by the use of a steam boiler, and is an element of inaccuracy in these estimates. The process being suspended and resumed involves a loss of fuel, and there is no doubt but that much waste occurs from there being too many burners under the boiler. Six burners instead of eight would serve the purpose, though the rapidity of getting up steam would be lessened.

Extractum Nucis Vomicæ, U. S. P.

Twelve troyounces of finely powdered nux vomica, moistened with four fluidounces of alcohol, were introduced into a cylindrical glass

percolator, adapted to a receiving bottle, and percolated with alcohol till nearly 4 pints of tincture were obtained, care being taken to displace the last part of the alcohol by water. To obviate the inconvenience of holding a percolator with one hand while filling and packing it with the other, George M. Dougherty, a member of the present class, has devised the instrument here figured, which is an improvement upon one invented by T. C. Conard, of last year's graduating class.

"The Manipulator" consists of two funnels of zinc, one fitting over the other at the smaller end, and a ring, with three springs attached, fitting securely over the outer one. A conical percolator is held in place while being packed, by the shape of the funnel; but when a cylindrical percolator is used, the springs are slipped on, and hold the percolator in a vertical position while it is being packed, and afterwards if desired.

The larger funnel has an opening by which a receiving vessel can be introduced under the percolator, held in position above; or an argand burner, may be placed in it, and an evaporating dish, containing a liquid to be evaporated, on the upper funnel.

The recovery of the alcohol from the tincture of nux vomica was accomplished by the use of the pharmaceutical still, with water-bath attachment, here figured.

Combination Still.

This differs from Procter's, figured in Parrish's Pharmacy, 3d edition, p. 297, in having a water-bath, C, into which the condenser, B, fits by a water-joint. There should also be a water-joint on the outer vessel, A. The tincture being in-

troduced into the water-bath C, this was then placed in A, which was half filled with water, and surmounted by B. Being at the opposite end of the counter from the hydrant and sink, water was supplied to the refrigerating surface from a vessel of tinned iron with a small tubule near the bottom, so elevated as to discharge onto the top of the still, and a larger one was placed on the counter to receive the warmed water flowing from it. A gas stove supplied the heat to the water-bath, and before the expiration of the hour all but about three ounces of the alcohol had been recovered. The semifluid extract was poured into a tared capsule and further evaporated over a draft of warm air to a solid consistence. The yield was 10 drachms = 10·4 per ct. The cost, deducting the cost of alcohol recovered, was about 28 cents per ounce.

ON A SIMPLE REMEDY FOR DANDRUFF.

By John L. Davis.

There are doubtless few persons, especially among gentlemen, who do not suffer from the inconvenience of dandruff. Physicians seem to consider it not of sufficient importance to engage their attention, and the poor victims are left either to practice their virtue of endurance, or, for a cure, to try some of the many nostrums advertised in the public prints.

The intolerable itching which frequently accompanies the troublesome complaint, is not the only unpleasant feature, as, to persons of any pretensions to neatness, the appearance of the white scales on the coat collar and shoulders is very objectionable.

The writer, during a number of years, tried the different alcoholic solutions of castor oil, and many other preparations without permanent benefit, and as a last resort, was led to adopt the plan of cleansing the scalp with borax and carb. potassa. This proved effectual, but after a persistent treatment of some months the hair became sensibly thinner, and perhaps would have soon disappeared all together. The belief that dandruff arises from a disease of the skin, although physicians do not seem to agree on this point, and the knowledge that the use of sulphur is frequently attended with very happy results in such diseases, induced me to try it in my own case. A preparation of one ounce flowers of sulphur and one quart of water was made. The clear liquid was poured off, after the mixture had been

repeatedly agitated during intervals of a few hours, and the head was saturated with this every morning. In a few weeks every trace of dandruff had disappeared, the hair became soft and glossy, and now, after a discontinuance of the treatment for eighteen months, there is no indication of the return of the disease. I do not pretend to explain the *modus operandi* of the treatment, for it is well known that sublimed sulphur is almost or wholly insoluble, and the liquid used was destitute of *taste*, *color* or *smell*. The effect speaks for itself. Other persons to whom it has been recommended, have had the same results, and I communicate the result of my experiments in the belief that it may be valuable and acceptable to many who have suffered in the same manner as myself.

ON THE LOSS OF THE HERBACEOUS PARTS OF PLANTS IN DRYING.

By John M. Maisch.

Few pharmacists have a correct idea about the amount of moisture contained in the drugs which they are daily handling, and many would smile incredulously if informed that some of these drugs, which are regarded as "dry," still lose from one-seventh to one-sixth of their weight if dried in a water bath, and that even many of the powders as met with in the shops contain from six to ten per cent. and sometimes more moisture. Carefully performed experiments with a large number of drugs and dry preparations are very much needed; for it is obvious that galenical preparations, and particularly tinctures, syrups, fluid extracts and the like, must vary in strength as prepared from anhydrous or merely air-dry material, though both may be of equal quality when anhydrous.

The loss in weight of living plants or parts of plants, when brought to an air-dry condition, is likewise a subject about which little is known, since pharmacists usually depend on wholesale dealers for their supply of indigenous drugs, though the plants may grow abundantly within convenient reach. The superior quality, however, of drugs collected and cured by the pharmacist, as compared with their usual condition in the general market, is often so striking, that few who value good and reliable drugs, would be willing to discontinue such collection and curing, after they have once commenced it.

In collecting the annual supply, it is necessary to take into consid-

eration the loss of these medicinal herbs, sustained by drying. The following table is compiled from observations by me, with plants or their parts of my own collection, and I regret that other notes of the more important medicinal herbs, growing in this locality, are now not at hand. Sufficient care was invariably taken to collect and weigh the plants free from external moisture by dew or rain; the drying was effected under an airy shed or in a room, protected from rain; and the final weight was taken when the plants ceased to lose weight in an ordinarily dry atmosphere:

	Loss, per cent.	yield, air-dry, per cent.
Chimaphila umbellata, leaves and stem,	48·98	51·02
Mentha canadensis, the flowering herb,	89·21	10·79
Scutellaria lateriflora, " "	77·68	22·32
Lobelia inflata, " "	76·56	23·44
Brunella vulgaris, " "	76·39	23·61
Nepeta cataria, " "	76·39	23·61
Eupatorium perfoliatum, the flowering tops,	76·52	23·48
Gnaphalium polycephalum, " "	63·34	36·66
Hypericum perforatum, " "	61·03	38·97
Datura stramonium, the leaves,	88·70	11·30
Hepatica triloba, " "	71·65	28·35
Cassia marilandica " "	70·92	29·08
Leontodon taraxacum, the root collected in Oct.,	72·40	27·60

The above data are too few in number to allow of any general deductions; it seems, however, as if low plants from wet localities (mentha canad.) and juicy leaves (stramonium) may yield air dry residues, equal to about one-ninth, plants from dry sandy soil (gnaphalium and hypericum) about one-third, other plants about one-fourth or one-fifth of their original weight; the large yield of chimaphila is doubtless in the main due to the woody stems, and in part also to the leathery leaves.

NOTE ON PERCOLATION.

By Louis S. Cohen.

The most efficient instrument for all preparations which require to be made by percolation, is, in my opinion, the ordinary glass-funnel of an angle of about 59°, as the following results of an experiment will clearly show:

Having mounted a Bohemian glass-funnel and a cylindrical glass-percolator, each with a sufficient amount of material to obtain four pints of tinct. gentianæ co., my results were as follows:

	From the glass funnel.	From cylindrical glass percolator.
The *first pint* of diluted alcohol coming through, increased in weight	℥i, ʒiij, gr. iv.	℥i, ℈i.
The second pint,	℥j, ℈j.	ʒvi. gr. xxiij.
The third pint,	ʒv, gr. xiij.	℥iij.
The fourth pint,	ʒij, ℈j.	ʒi, gr. iv.

In various other experiments I have always been able to obtain far better results, and to exhaust the material more thoroughly by employing the glass-funnel.

LITMUS PAPER AS A REAGENT.

By Charles Bullock.

In using litmus paper as a reagent to detect the presence of acids and alkalies, the suggestion sometimes occurs "what amount of acids or alkalies is necessary to give a distinct change of color to the test paper?"

The result of a few experiments to determine approximately the above question, may be of interest to the readers of the Journal.

Blue litmus paper should be distinctly blue, but not a deep shade in color. The directions given by Fresenius in his Qualitative Analysis will afford a sensitive paper; when carefully made it affords the reactions with one drop of acetic acid No. 8 (30 per cent. acid) in the following amounts of water:

In four ounces of water it turns red immediately; in six ounces, completely red in one-half minute; in ten ounces, changes on the edges in one-fourth minute and is completely reddened in one minute; in 13 ounces it is completely red in a minute and a half, and remains red when dry. In 16 ounces of water the limit of distinct reaction is found.

Reddened litmus paper. Reddened litmus solution should have a purple red color, and the paper, when dry, a distinct red color free from blue.

With one grain anhydrous carbonate of soda in 32 ounces of water, the paper turns blue in one minute; in 56 ounces of water, in three

minutes; in 64 ounces of water, in four minutes; in 80 ounces of water, in seven minutes; in 160 ounces of water is found the limit of distinct reaction—the blue shade can be seen before the color is dissolved from the paper.

In making the above experiments the paper was submerged in the liquid.

Philadelphia, December, 1871.

FORMULAS IN LOCAL USE.

By Louis S. Cohen.

Believing it to be the duty of every conscientious pharmacist to contribute, through the Pharmaceutical Journals, to the profession whatever improvements he may be able to make, be they ever so trifling, I cannot approve of the practice of some in our ranks who make certain preparations, bestowing on them, with quite an air of authority, *officinal titles*, and still regard them as proprietary specialties in claiming superiority for their formulas, without giving the profession the benefit thereof. Some pharmacists have endeavored to publish all their observations that may be useful to others; yet they are "few and far between." By following such examples, our science and art would more readily be raised to a far higher standard than it now occupies, and would be far more respected by the public at large.

In the following I offer a few contributions of local formulas, trusting they may be welcome to some readers of the *American Journal of Pharmacy*.

Mixtura Rhei et Sodæ.

℞. Pulv. Rhei,
Sodæ Bicarbonat. *aa* ʒij,
Aquæ Menth. pip. ℥iv. Mix.

This, though often prescribed in this city, can only be prepared by the "initiated," because the formula has been kept secret.

Potio Riveri.

℞. Potass. Carb. depur. ʒj,
Acid. Citrici grs. lij,
Aquæ ℥ij. Mix.

This preparation corresponds rather closely to our "neutral mixture," and it is often prescribed under the above title by German

physicians; but few American pharmacists have been able to prepare it, not knowing the nature of the preparation. If the fraternity would follow this feeble effort in disseminating such knowledge, I am sure it would be productive of very good results, for "In union there is strength."

New York, December, 1871.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Corrosive sublimate and chloride of sodium. Julius Müller observed that all preparations of mercury, the insoluble sulphide alone excepted, are dissolved by a solution of chloride of sodium in a form in which they do not precipitate albumen. A concentrated aqueous solution of one part corrosive sublimate and ten parts chloride of sodium, which does not precipitate albumen, acquires this property again on being largely diluted with water. Instead of the double chloride of sodium and mercury, which has of late been recommended, Müller recommends to dissolve one part corrosive sublimate and one hundred parts chloride of sodium in distilled water, and evaporate the solution to dryness. This saline mixture contains one per cent. corrosive sublimate, produces with caustic potassa a white, not a yellow, precipitate, is not effected by solution of albumen, and has been given with good results in tablespoonful doses every two hours, in a solution made of 6 grm. (90 grains) in 180 grm. (6 oz.) of water. —*Archiv d. Pharm.*, 1871, *Sept.*, 218—221.

Purification of carbonic acid gas. Dr. Emil Pfeiffer recommends to pass the gas generated from limestone, through olive oil, in which a number of pieces of pumice stone has been introduced. The same agent has been found of good service in the Paris gas factory, where Mallet introduced it in the direct preparation of strong solution of ammonia, for the removal of carbohydrogens and empyreumatic oils. The volatile odorous principles may be removed by heat, and the oil used for a long time.—*Ibid.*, 223.

Ammonia salts prevent the complete precipitation of phosphoric acid by molybdate of ammonia. Dr. J. König found that the phosphates of iron, alumina and lime, are soluble in solutions of oxalate and citrate of ammonia, in consequence of the formation of soluble double salts. Large quantities of ammonia salts interfere with the complete

precipitation of phosphoric by molybdic acid; oxalate and citrate of ammonia exert this injurious influence in such a degree that they will prevent the precipitation altogether, if present in sufficient quantity.—*Zeitschr. f. anal. Chem.*, 1871, 3, 305—307.

Colored sulphate of atropia has been observed by Dr. H. Hager, who attributes the coloration to the presence of a glucoside. The solution boiled with nitrate of silver became colored and separated black metallic silver; boiled with an alkaline solution of copper, cuprous oxide was deposited. The author regards all sulphate of atropia as impure and unfit for medicinal use, which acts upon the two solutions mentioned.—*Pharm. Cent. Halle*, 1871, *Oct.*, 26.

Lead in phosphate of lime.—Mr. Duquesnel has often found commercial phosphate of lime to contain small quantities, about one-half per cent., of the insoluble oxychloride of lead. Its presence is explained by the use, in chemical factories, of lead vessels for dissolving the calcined bones in muriatic acid. The lead is readily detected by the black precipitate occurring with sulphuretted hydrogen in a solution of the phosphate in muriatic acid.—*Journ. de Ph. et de Chim. Sept.* 1871.

A new method for preparing Blaud's pills.—Mr. J. F. Michiels recommends the following process for obtaining a pill mass of good consistence and keeping well; it has the advantage of not requiring any inert powder, although it is slightly hygrometric. 500 grm. powdered sulphate of iron and the same quantity of powdered carbonate of potassa are intimately mixed; 60 grm. of powdered white sugar are added; the mixture is heated in an iron mortar, with constant trituration, until a sufficient amount of water of crystallization has been expelled, and a convenient pill mass obtained.*—*Bullet. de la Soc. roy. de Ph. Brux., Sept.*, 1871.

Pills of creasote. The following formulas are published in *Journ. de Pharm. et de Chim.*, 1871, Oct., p. 276:

Creasote gtt. j.	Creasote gtt. iij,
Powd. soap 0·25 (gr. iv).	Bread crumb 0·60 (gr. ix).
Bread crumb 0·20 (gr. iij).	Lycopodium 0·06 (gr. j),
Lycopodium 0·05 (gr. ⅘).	Mucil. tragacanth q. s.

Each formula is for six pills, which contain respectively one-sixth and one-half a drop of creasote.

Pills of carbolic acid. Carbolic acid gtt. iij, powd. soap 0·60

* See also pages 307 and 373 of the last volume.

(gr. ix), lycopodium 0·06 (gr. j), powd. tragacanth q. s., to make six pills. The two first ingredients form a semifluid mass, which the lycopodium does not absorb, but which thickens with the tragacanth. —*Ibid.*

Emulsion of tar by saponin. Lucien Lebeuf recommends this preparation as superior to the water and other liquid preparations of tar; 100 parts of it contain two parts of tar and one-fifth of saponin, the latter too insignificant in quantity to be of any medicinal importance, but sufficient to suspend in water all the constituents of the tar, without exerting any chemical action upon them. The emulsion is very staple, presents the tar in the most favorable condition for absorption, and is miscible with water in all proportions. The author believes this emulsion to be by far the best form for the external application of tar, which may thus be employed in lotions, injections, gargles, &c., for which the preparations hitherto employed were not adapted.—*Ibid., p.* 279—281.

Sulphate of eserina (*physostigmia*) is prepared by A. Petit, by dissolving one part of the hydro-alcoholic extract of the calabar bean in four parts of water, filtering from the slight residue which contains no alkaloid, and adding one-twentieth part bicarbonate of potassa; the liberated alkaloid is then removed by agitation with ether, from which solution it is converted into sulphate by agitation with dilute sulphuric acid, which passes into aqueous solution and may be obtained by evaporation. The ether is used three or four times for removing the alkaloid. If the sulphuric acid is diluted 40 grms. to one litre, each drop = 0·05 grm. dilute acid, will correspond to and neutralize 0·01 grm. eserina; if the alkaloid is just neutralized, the amount of acid required will indicate the amount of alkaloid present, and by evaporation to a given weight, solutions of the sulphate of any desired strength may be obtained, without the necessity of previously preparing the dry salt.—*Ibid., p.* 277.

OPIUM PRODUCTION IN EUROPE.

By Dr. C. O. Harz.

Some fifty years ago experiments to produce opium in Europe were made which were so successful as to strongly recommend to the farmer the cultivation of poppy.

In Germany and Austria the idea did not find much favor, and was

soon forgotten, while in France it was taken up and carried out on a large scale. The cultivation of poppy increased year after year, and it now occupies about 50,000 acres, of the value of four and a half million francs, yielding two million francs of opium a year. More recently Mr. Karsten has revived the interest in the question in Germany, and in several parts of the country trials have been made with most favorable results.

Experiments made at the acclimatization fields, near Berlin, proved that the giant, the blue and the white poppy were best suited for the production of seed on that soil; these three varieties were therefore planted on a well-manured sandy soil, and the opium obtained therefrom showed all the external qualities of a good Smyrna sample, analyzed.

	Soluble in Water.	Organic Basis.	Of which Morphium.
Giant Poppy.	66·3 per cent.	13·6 per cent.	9.3 per cent.
Blue "	70·1 "	10·7 "	8·0 "
White "	69·6 "	8·0 "	—

The last sample was in too small a quantity to give exact results.

In 1866, several experiments made near Berlin, viz., at Pankow, Charlottenburg and Hermsdorff, yielded opium containing 10 per cent. of morphium.

Karsten sowed the seed in two lines about 6 inches apart, and separated by about 2 feet distance from the next two lines, so as to allow free passage in gathering in the opium; the young plants were kept asunder about 3 to 4 inches.

About eight days after florescence the poppies were cut, and the milk juice, a few minutes afterwards, collected with the finger in a vessel, and at once evaporated at a gentle heat; the result was of superior quality, containing 66 per cent. soluble in water, and 10 per cent. of morphia. An instrument called the scarificator, for making the incisions, was not approved of, but the most suitable instrument was an ordinary garden-knife or penknife, provided with a guard to prevent its making the incisions so deep as to cut through the capsules. This is of great importance, because the cutting through of the poppy-heads is invariably followed by a shrivelling up of the young fruit, so that not only the juice but also the seed is lost.

Mr. Schulze, a schoolmaster at Pankow, commenced in 1867, and

he also found it best to collect the fresh juice, instead of allowing it spontaneously to dry on the fruits, giving a much purer quality. Dr. Harz received samples of the opium produced, and found it to contain 10·9 per cent. of morphia; after having been kept for some time in a paper box, it showed the following properties:—It was tough and tolerably hard, greyish-brown, somewhat like German lactucarium, forming a mass of tears of the size of a pea, of waxy surface when cut, with difficulty reduced to a light grey powder. The smell was intense, stronger than that of Smyrna opium, and also resembling lactucarium; the taste exactly like that of the best Smyrna.

The tincture made according to the Prussian Pharmacopœia was slightly brown, somewhat like Madeira wine, scarcely one-third so intense in color as the tincture made from Turkish opium, according to English prescription. Analysis of the sample dried at 100° C. gave, soluble in cold water, 49 per cent.; the insoluble consisted chiefly of narcotine, of a resinous mass 7 per cent., and caoutchouc and fat soluble in chloroform 14 per cent.

The aqueous extract, containing 49 per cent. of the opium, and containing besides morphia scarcely 1 per cent. of other bases, was brought nearly to dryness in a water-bath, and extracted with alcohol. There remained 9·4 per cent. of gummy substances and organic salts; the filtrate mixed with water gave, on gradual addition of ammonia, after ten days, 10·9 per cent. crystals of morphia.

The opium was therefore of very good quality, and the separation of morphia was facilitated by the lighter color of the juice.

In 1868, opium cultivation was commenced at several places in Württemberg. Mr. Julius Jobst, of Stuttgart, made experiments which are very valuable, because as the first on a really large scale they established the profitable character of the speculation. Several acres of land were sown with poppy-seed; a fortnight after the fall of the petals the young heads were cut, and the juice collected; this was repeated a second time, but a third incision did not yield enough to pay for the labor. The best time for the incision is the early morning, shortly after sunrise; on hot days, and especially in the middle of the day, only very little juice was produced. The exuded juice, after slight desiccation, was collected in a tin box, the pasty mass was dried in the shade, and wrapped up in poppy-leaves in the shape of small loaves; the manufactured opium formed dark brown cakes, and contained 13 per cent. of morphia.

Mr. Vulpius, pharmacist at Bocksberg, near Heidelberg, produced some opium in 1870, samples of which are now in Dr. Harz's possession for analysis. Dr. P. Sorauer made, at the same time, successful experiments at the Agricultural Experimental Establishment at Dahme, near Berlin; he made the important observation, that the incised capsules yielded more seed than the sound ones, which would increase the profit in a new direction.

The manufacture of olive oil is, in Austria, in a very primitive state, and large sums of money go out of the country to be invested in good salad oil, which, if kept at home and laid out in opium cultivation, would assist in manufacturing a pure poppy oil, exceeding in agreeable taste the olive oil. The incisions must be made in fourteen to eighteen days after the petals have dropped, and, according to Jobst's experience, in early morning. Gastinel, of Cairo, in the *Journal de Pharm. et de Chim.* 1865, draws attention to the fact, that opium obtained from nearly ripe poppies yielded 10 to 12 per cent. of morphia, while another sample, collected directly after florescence, gave a pretty large yield, but contained only 3 to 4 per cent. of the alkaloid. The condition of the soil is of course of importance, although opinions differ on this point; Gastinel finds a well-manured soil to yield opium rich in morphia, while Figari-Bey comes to the reverse conclusion, and the last view is strengthened by Dr. O'Shaughnessy, who observed in East India that opium grown on manured soil contained less morphia than that from an unmanured soil. Certain it is, that newly manured soil acts unfavorably upon the poppy-seed.

In order fully to develop the opium cultivation at home, it will be necessary to settle the following questions, viz.:—

1. Which variety of poppy produces most seed and the best opium, richest in morphia?

2. What influences does the quality of the soil (presence of chalk, manure, etc.) exercise upon the formation of the two products?

3. Which is the most unfavorable time for cutting the poppy-heads?

4. Does the yield of seed increase with the incision?—*Pharm. Journ. and Trans.*, from *Zeitsch. oestr. Apotheker-Vereines, July*, 1871.

A NEW EXCIPIENT FOR PILLS.*

By J. B. Barnes.

Soluble cream of tartar is a solution of bitartrate of potash in biborate of soda, boracic acid, or biborate of soda and tartaric acid; either of these compounds, when evaporated to the consistence of mucilage, is heavy and adhesive.

Having had my attention directed in an especial manner to the medicinal properties of sulphur, I was naturally led to reflect upon the inelegant mode of its administration. It is true the sulphur electuary of the Pharmacopœia is an improvement upon the horrible mixture of sulphur and treacle in common use, but still there is the grittiness and the mess. Sulphur is generally taken in combination with bitartrate of potash; and the soluble modification of this salt possessing the above-mentioned properties, it suggested to my mind the employment of so appropriate an excipient for the conversion of this substance into pills; and I venture to suggest that pills so prepared might be employed when this substance is required to be taken in doses of between four and twenty grains.

The samples of sulphur pills on the table, prepared respectively with the sublimed and precipitated varieties, contain in each four or five grains, together with one grain in twelve pills of gum tragacanth, and a sufficient quantity of soluble cream of tartar. The pills containing four grains of precipitated sulphur are smaller than it is possible to prepare them with any of the ordinary excipients, being not quite so large as a five-grain compound rhubarb pill, and as hard as a lozenge. When placed in tepid water, the soluble cream of tartar speedily dissolves, and the sulphur is set free.

I propose to call them "sulphur and cream of tartar pills."

I have also prepared five-grain pills of hydrate of chloral, Dover's powder, nitrate of potash, chlorate of potash, citrate of potash, and gallic acid. The formula used for the chloral pills is as follows:

Hydrate of Chloral, ...	1 drm.,
Soluble Cream of Tartar (of the consistence of mucilage,)	2 drops,
Gum Tragacanth, ...	2 grs.

Mix and divide into twelve pills. These require to be kept in contact with lycopodium. They keep their form perfectly and gradually

* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, Nov. 1, 1871.

harden; minute glistening particles of the drug have, however, made their appearance on the surface of these pills, and also on the bottle, indicating that they should not be made too long before they are required to be used.

In the conversion of Dover's powder into pills, soluble cream of tartar only was used; for those of nitrate of potash and chlorate of potash one grain to the drachm of gum tragacanth was employed, in addition to the soluble cream of tartar; for those of citrate of potash and gallic acid took two grains of the gum to each dozen. The nitrate of potash, chlorate of potash, gallic acid and citrate of potash pills were dried at a gentle heat; the three former keep well in boxes; those of citrate of potash should be kept in bottles in contact with lycopodium. With the exception of the gallic acid, all these pills are smaller than an ordinary five-grain pill.

I have also prepared four-grain pills of chloride of ammonium, using the soluble cream of tartar, and one-sixth of a grain gum tragacanth in each; these should also be kept in well-closed bottles.

The one-grain camphor and three-grain quinine pills on the table contain, in addition to the soluble cream of tartar, one-twelfth of a grain gum tragacanth in each. The gallic acid pill, as might have been expected, is large but hard, keeps well, and makes a more satisfactory pill than when glycerin is used; all these pills are firm, dissolve quickly in tepid water, and, what is of considerable importance, present a good appearance.

I thought it probable that by boiling trisnitrate of bismuth in a solution of soluble cream of tartar a soluble bismuth pill might be prepared, but I find it takes seven grains of the dried salt to dissolve one grain of the trisnitrate. I have, however, prepared four-grain pills of this body, which contain hatf a grain of the trisnitrate in each.—*Pharm. Journ., Lond., Nov.* 4, 1871.

OBSERVATIONS ON THE COLOR OF FLUORESCENT SOLUTIONS.—NO. II.

By Henry Morton, Ph. D.,
President of the Stevens Institute of Technology.

Since the publication of my article on the above subject,* I have discovered a curious action which, while it in no respect affects my

* See American Journal of Pharmacy, 1871, Oct., 463.

general conclusions, nor the main observations on which they were founded, throws out one of the corroborative experiments by which I thought that they might be established when a spectroscope was not at hand.

Obtaining some very anomalous results of late, I was led to mistrust the action of the Geissler tubes in which the solutions had been examined.

They were of the ordinary kind of jacketed spirals, selected as being nearly identical in size and other particulars.

It had been observed from the first that the internal spiral gave a faint blue fluorescence which could only be seen on close inspection; and in all cases, the tube being but partly filled, it was considered that a light appearing in the part covered by the fluid, many times more bright than that from the uncovered part of the spiral, was sufficient evidence of fluorescence in the liquid.

Late experiments have, however, proved that this was not so. Any liquid, however devoid of fluorescent properties, gives all the appearance of fluorescing in these tubes, and on a little thought the cause of this became clear.

The only fluorescent light that can be seen from the glass of the spiral is that which comes off tangentically from the outer surface, that emitted radially being marked by the bright electric discharge behind.

In passing from the glass to air, most of the light will suffer total reflection at the outer surface of the glass, but if water or any other liquid is substituted for the air, its greater refracting power (approaching that of glass) will diminish the above-named action, so that much more of the light will reach the eye. The truth of this explanation was supported by the observation that the nearer the index of refraction in the liquid came to that of glass, the brighter was the light seen through it, while a liquid of higher refraction, like carbon bisulphide, seemed a little to weaken the effect by diffusion.

This fact renders of no account the observations before made on filtered and diluted solutions of turmeric, but a fresh observation with the spectroscope on tubes free from fluorescence has fully confirmed my former conclusions as to the true color of fluorescence in this liquid.

No correction need be applied to the description already published in the case of the asphalt solution, but I may add to what was there stated another striking example.

If one of the little Geissler tubes containing nitrogen, called "spectrum tubes," be jacketed by means of a perforated cork and a large glass tube, and the jacket filled with pure or non-fluorescent benzine, then illuminating the tube, and with a pipette dropping in that petroleum product, called "cosmoline" (a lubricating oil made by E. H. Houghton, of Philadelphia), each drop will appear of a rich blue as it dissolves in the benzine, which soon acquires a magnificent blue fluorescence. Increasing, however, the quantity of cosmoline oil until its color begins to take effect, the tint of the fluorescence gradually changes to a rich green.

By a little care a blue solution may be superposed on a green one in the same tube.

Another semi-solid preparation of cosmoline, which has a very light color, gives a solution with benzine fluorescing of a magnificent blue.

I have this substance now under investigation, and hope soon to be able to make some further observations upon it.*

Returning to the solutions of turmeric I have found that the fluorescent body in that substance is not its essential oil nor its brown coloring matter, but either the yellow coloring matter itself, or something so closely allied to it in solubility that I have thus far been unable to effect any separation.

In connection with this let me say that I am much indebted to Mr. Robt. F. Fairthorne, of Philadelphia, who has aided me greatly in the preparation of the various constituents of turmeric in a state of purity.

In my former paper I mentioned that uranium nitrate in solution gave a very faint fluorescence.

This appearance I now find was due entirely to the above-explained action of the tube, and a number of carefully conducted observations now convince me that this substance, while it fluoresces so vividly in the solid state, loses that property entirely when in solution.

I have also found that a saturated solution of acid quinine sulphate has its fluorescence much *increased* by dilution.

Lastly, let me remark that I by no means assert that *all* solutions fluoresce blue, but simply those which I have examined. There are many which I have as yet been unable to procure or study, whose relations in this respect I hope soon to investigate.—*Amer. Journ. Sci. and Arts, Nov.*, 1871.

* Mr. Houghton tells me that "cosmoline" is prepared from crude petroleum by evaporation in vacuo and filtration through animal charcoal only, without chemical treatment.

NITRITE OF AMYL*.

By Alfred B. Tanner.

The author first gives an account of the introduction of this new remedy into medicine, and particularly of its use in angina pectoris as advocated by Dr. L. Brunton, and as an antidote to the effects of an overdose of chloral, ergot, &c., suggested by Dr. Talfourd Jones, who also believes it to prove a reliable remedy for the collapse and cramps of cholera†.

Nitrite of amyl was discovered by M. Balard in 1844. An account of the physical and chemical properties of this interesting ether is then given, and the various processes are reviewed which have been suggested for its preparation, after which the author continues:

The process by which I have been in the habit of preparing nitrite of amyl, and of which I now intend giving you a description, is one which I think will be found convenient for its preparation on a small scale, and of sufficient purity for medicinal use. I do not claim any originality for it, as it is probable that many may have thought of it although not put it into practice. So long ago as July last year, while making spirit of nitrous ether by the Pharmacopœia process, the idea occurred to me that, with some modification, this might be made a convenient one for the preparation of nitrite of amyl. A demand for the latter arising just then, I put it into practice. In Mr. Maisch's paper in the April number of the Journal,‡ he states that the same idea occurred to him, but that he found it not to answer, and this I think may be easily accounted for. The process for spirit of nitrous ether, as you are all aware, consists in distilling, at a certain temperature, a mixture of rectified spirit, sulphuric and nitric acids in certain proportion, and copper wire; the distillate consists mainly of a mixture of nitrite of ethyl and ethylic alcohol. Now, by substituting amyl alcohol for the rectified spirit in this process, you get nitrite of amyl among other products; but Mr. Maisch appears to have overlooked one fact, viz., that rectified spirit contains 16 per cent. of water, and that the amylic alcohol he used was nearly anhydrous. He states that the amylic alcohol, *i. e.* the purified substance, was mixed with sulphuric acid, the mixture introduced into a retort,

* Abstract of a paper read at a meeting of the Liverpool Chemists' Association, Nov. 9th, 1871.

† British Medical Journal, Sept. 30th, 1871.

‡ Amer. Journ. Pharm., 1871. p. 146.

together with some copper wire, and, after cooling, HNO_3 was added. In a very few moments the evolution of gas was observed, the liquid became hot without the external application of heat; and the reaction very rapidly increased to such a violence that the entire charge was lost, it being impossible to condense any of the vapors in a Liebig's condenser, or to retain much of the liquid forced over into the receiver. I may add, that I have repeated this experiment with exactly the same results; nearly the whole charge was forced over into the receiver, and, while there, the action again commenced, and increased to such violence that I have no doubt it would have forced itself back into the retort again if their mutual positions had been favorable. As it was, I was obliged to introduce it to the open air, for the whole house became filled with the vapor, and every one who respired it became suddenly red in the face. Upon one of my assistants it had a very remarkable effect; it seemed to affect the muscles at the back part of the neck, and drew the head backwards, but this soon passed off. I should quite expect that the reaction would be just as violent in making spirit of nitrous ether, if we used anhydrous alcohol instead of 84 per cent. as ordered. In preparing the nitrite of amyl by the process I employ, it is of the utmost importance that the amylic alcohol be as pure as possible. Amylic alcohol, as you all know, is formed during the fermentation of potatoes, rye, barley and the marc of grapes; and when these are distilled it communicates a very pungent, and to many repulsive, odor and taste to the spirits. It is considerably less volatile than either ordinary alcohol or water, having a boiling point, when pure, of 132° C.; in consequence of this property, it accumulates in the last portions of the liquids that are distilled. Its name is derived from *amylum*, starch,—this being the most abundant constituent of potatoes. Liebig states that amylic alcohol is formed principally in the fermentation of alkaline or neutral liquids, and its production in the potato mash may be prevented in great measure by adding crude tartar to the fermenting liquid. Its formation never occurs in acidulous fermenting liquors which contain tartaric, racemic, or citric acids. The addition of hops to the liquid has a similar effect in checking the development of amylic alcohol, or fusel oil, as it is generally termed. It is, when pure, a colorless limpid liquid, of a penetrating and disagreeable odor, exciting headache and coughing when its vapor is inhaled. It is sparingly soluble in water, though it mixes in all proportions with alcohol,

ether and essential oils. It is not easily inflammable, but burns with difficulty, giving a bluish flame. Its specific gravity, when pure, is ·818, and boiling point 132° C. Amyl alcohol is not acted upon by the atmosphere, except it be in a very thin layer, or under the influence of spongy platinum, when it is oxidized into valeric acid, $C_5H_{10}O_2$, which acid bears the same relation to amylic alcohol that acetic acid, $C_2H_4O_2$, does to ordinary alcohol. Fusel oil, as met with in commerce, is usually a clear yellowish liquid, with a peculiar penetrating odor, varying, of course, with the substance from which it has been produced. It has a specific gravity of from ·840 to ·850, and is largely contaminated with the lower alcohols of this series; so far as my experience goes, it is only about half pure amyl alcohol. As I have before stated, it is of the utmost importance, in the preparation of nitrite of amyl, that the amylic alcohol be as pure as possible, for it is much easier to purify this than to purify the nitrite produced from it in its impure state. For this purpose, the best process is first to agitate the fusil oil with about an equal bulk of a strong solution of chloride of sodium; this usually reduces its bulk about 16 or 20 per cent., and also considerably lowers the specific gravity. This washed product is separated and introduced into a retort furnished with a thermometer; that portion of the distillate which passes over before the temperature reaches 125° C. consists mainly of the lower alcohols of this series, and whose boilings points are below that of amylic alcohol, for the boiling point rises in proportion as the compound is richer in carbon. The distillate collected between 125° C. and 140° C. is collected apart, and redistilled until it has a boiling point near 132° C.; this may then be considered pure enough for our purpose. This is then introduced into a glass retort containing some copper wire, and furnished with a safety tube, and one-tenth its bulk of $H_2S\ O_4$ added. The same quantity of $H\ N\ O_3$, diluted with an equal volume of water, is next put in, and a very gentle heat applied until the temperature reaches about 65° C., when the reaction will commence and proceed in a perfectly manageable manner, until a bulk about equal to double the quantity of $H\ N\ O_3$ added collects in the receiver, the temperature in the meantime rises to about 98° C. The reaction ceases very quickly, as in the case of spirit of nitrous ether. The temperature having fallen somewhat, another portion of $H\ N\ O_3$, equal in bulk to the first, is added, and this process of successive additions of the acid continued until nearly the whole of the amylic alco-

hol is exhausted, which may be known by the dense red fumes evolved from the retort. The distilled product exceeds in bulk the amylic alcohol used, and is the impure nitrite of amyl. This is washed with solution of Na H O to remove the H C N and other free acids present, and rectified over fused $K_2C\ O_3$ to get rid of moisture. The portion which distils between 95° and 100° C. is collected as nitrite of amyl, sufficiently pure for medicinal use.

It has several times been stated that nitrite of amyl produces violent headache, and also coughing and irritation of the larynx; this, I think, must be due to its insufficient purification. The presence of H C N and undecomposed amylic alcohol would, I think, account for this; no such effect was produced on myself with the purified nitrite. Mr. Umney has shown, in an article in the *Pharmaceutical Journal* of November, 1870, that the samples then met with were very impure. —*Pharm. Journ. and Trans.*, *Nov.* 25, 1871.

NOTE RELATIVE TO THE BROMIDE OF CALCIUM.

By William A. Hammond, M. D.

Bromide of calcium is a white crystalline substance, very soluble in water, and readily decomposing on exposure to the atmosphere for a few minutes. The aqueous solution is at first colorless, but it soon becomes tawny from a portion of the bromide being set free. Its taste is similar to that of the bromide of potassium, though somewhat more pungent and disagreeable.

The formula of bromide of calcium is BrCa, and its combining equivalent is 98 (Br. 78, Ca. 20 = 98); 100 grains, therefore, contain about 79.5 grains of bromine.

Desiring to test the therapeutical value of this compound, I desired Dr. Neergaard to procure it. During the last few months I have used it in a number of cases in which the bromides were indicated, and have become satisfied of its great efficiency as a medicinal agent.

The dose is from fifteen to thirty grains or more for an adult. It is especially useful in those cases in which speedy action is desirable, as, owing to its instability, the bromine is readily set free, and its peculiar action on the organism obtained more promptly than when either of the other bromides is administered. Chief among these effects is its hypnotic influence, and hence the bromide of calcium is

particularly beneficial in cases of delirium tremens, or in the insomnia resulting from intense mental labor or excitement.

Thus, I gave a gentleman, who, owing to business anxieties, had not slept for several nights, and who was in a state of great excitement, a single dose of thirty grains. He soon fell into a sound sleep, which lasted for seven hours. The next night, as he was wakeful, I gave him a like dose of bromide of potassium, but it was without effect, and he remained awake the whole night. The subsequent night he was as indisposed to sleep as he ever had been, but a dose of thirty grains of bromide of calcium gave him eight hours sound sleep, and he awoke refreshed and with all unpleasant cerebral symptoms—pain, vertigo, and confusion of ideas—entirely gone.

In a number of other instances a single dose has sufficed to induce sleep, a result which very rarely follows the administration of one dose of any of the other bromides.

In those exhausted conditions of the nervous system attended with great irritability, such as are frequently met with in hysterical women, and which are indicated by headache, vertigo, insomnia, and a mental condition of extreme excitement, bromide of calcium has proved in my hands of decided service. Combined with the syrup of the lacto-phosphate of lime, it scarcely leaves anything to be desired. An eligible formula is—℞. Calcii bromidi ʒi, syrup. lact. phos. calc. ℥iv. M. ft. sol. Dose, a teaspoonful three times a day in a little water.

In epilepsy I have thus far seen no reason for preferring it to the bromide of potassium or sodium, except in those cases in which the paroxysms are very frequent, or in cases occurring in very young infants; of these latter, several, which had previously resisted the bromide of potassium, have yielded to the bromide of calcium. It does not appear to cause acne to anything like the extent of the bromide of potassium or of sodium.

My object in writing this note is simply to call attention to a remedy which promises well.—*New York Medical Journal, December*, 1871.

CINCHONA TREES GROWN IN INDIA.

At the meeting of the London Pharmaceutical Society, held November 1st, 1871, Mr. John Elliot Howard read a paper, in which he recorded his latest experiments on the Indian Cinchonas.

Last summer he was furnished with two trees complete, roots, trunk, branches and leaves, not living, but packed in cases, from the Government Gardens, Ootacamund. They were nearly five years old when cut down. One was *Cinchona succirubra* and the other *Cinchona officinalis*. The gross weight of the first was 28 pounds 12 ounces, of the second 10 pounds 1 ounce; showing that the *C. succirubra* will develop almost three times as fast as the *C. officinalis*, a circumstance accounted for by the abundance of its leafy branches, whilst the general aspect of the Loja-tree, a stem bearing a tuft of vegetation on the summit, has caused it to be compared to the aloe.

But this rapid development of the *succirubra* by no means necessarily implies a corresponding success in the cultivation of this species. If the quinine found in the bark of the *C. officinalis* prove to be three times the amount in the same time, and of purer quality than in the *C. succirubra*, and supposing the relative weight of the bark to be the same, the preferential price would be given for the one-third weight of *C. officinalis*. The average of a parcel of *C. succirubra* recently cut, and now coming home is, he was informed, *under* 1 per cent., but the average of the *C. officinalis* coming in the same parcel is *over* 3 per cent. of sulphate of quinine. Mr. Howard had not ascertained the relative weight of the barks of these specimens, but he stated that that on *C. officinalis* was the thickest. The trees very closely resembled in external aspect those of the same sorts grown in their native climates. This was especially the case with the *C. officinalis*, which seems in all respects to be the exact reproduction of the plant named by Pavon *C. Uritusinga*, but which has now been restored by Dr. Hooker to the old Linnean designation. Another general observation which presented itself on closer inspection, was the occurrence on the lower part of the trunk of each tree of a peculiar white fungus occupying the crevices of the bark, penetrating into the very wood itself, and occupying cracks and fissures in the same. This Mr. Howard considered a very bad indication; and, judging from the analogy of beech-trees similarly affected in plantations here, would regard it as an almost fatal sign. It may not generally occur in the Indian plantations, but its accidental existence in these trees may, in part, have led to their selection for the purpose of eradication. A portion of bark of the under part of the stem of a Calisaya tree grown in Java, and "infected by mycelium," was shown. This arose from the decaying portions of old roots and

trunks of the uprooted forest, in place of which cinchona-trees were expected to flourish. The same or a differerent cause may have led to the existence of this fungus on the trees at Ootacamund. Mr. M'Ivor explained the evil as arising from the earth being heaped up for some inches around the base of the trunk, in which case it may have had a simply local origin. All the cinchonæ are impatient of water at the roots, and if the water lodges in the least in the subsoil, although it may be a place where there is an excellent fall and surface drainage, there is a bald patch in the plantation. Mr. Howard's chemical examination of the bark proved in the first place that an anticipation of Mr. Broughton's was not verified. The Government quinologist expressed a doubt whether the quality of the bark would not be damaged by allowing it to dry on the tree, since he had found that if a tree dies from any cause its bark loses its alkaloids in a few weeks. Possibly in this case the sudden death of the tree prevented any abnormal circulation. The bark (of *C. succirubra*) yielded 3·54 per cent. of alkaloids, of which only 0.82 proved to be quinine, the rest cinchonidine and cinchonine—the former pure and good; the latter, on the contrary, losing much weight in refining. The bark, in fact, resembled that taken from similar trees in the ordinary method. The bark of the roots is so thin, and adheres with so much pertinacity to the wood, that it would seem lost labor to attempt its separation in any quantity in the dry state, whatever may be the case when the roots are freshly removed from the earth. The examination of the heart-wood yielded to the author results analogous to that from South American trees, with this exception, that he found less cinchotannic acid than in the wood from South America, and also a small portion of chlorophyll. In the course of some further remarks Mr. Howard said he hoped the examination of the leaves of these plants might afford some topics of interest. He showed a botanical specimen of the valuable variety of *C. officinalis*, known as the *lanceolate*. Mr. Broughton and Mr. Howard had both found an unusually large percentage of alkaloids from this bark, not less than 11·40 per cent., and 9·75 of quinine. The Pitayo species and the variety of *C. officinalis* known as *Amarilla del rey*, were also very valuable, and should be cultivated, but the last-named it was now impossible to procure. By devoting attention to such points, by encouraging the best species, and by high cultivation, the undertaking of Indian acclimatization will become one of pecuniary profit.

All things seem to promise an abundant return to the careful cultivator, and the pecuniary result is beginning to be realized, from shipments sent home to Europe. There can be no doubt that, on the whole, this great experiment is a success.

Mr. Haselden asked why the Government should have encouraged the growth of the *succirubra* barks in preference to the *Calisaya* barks, seeing that the latter produced a larger amount of quinine—so much used in this country—than the other.

Professor Bentley asked whether the results obtained were founded upon examination of one or two plants, or were arrived at by the examination of a number of plants; because everyone who knew anything about the development of plants would agree that two plants selected promiscuously would not yield any special result which could in any way be depended upon. There was another question in which he felt interested. Some years ago Mr. Howard had shown that the root-bark of *C. calisaya* was very much inferior in every respect to the stem-bark. But certain other investigators came to a different conclusion. If he rightly understood Mr. Howard's paper that evening, no special examination was made of the root-bark, because it was too thin. If, however, he had made any such examination, it would be very interesting to know the comparative value of the root-bark and the stem-bark, not only as bearing upon the particular views which Mr. Howard had always held, but as bearing on those different parts of the bark which were of great importance to all who took an interest in physiological botany.

Mr. Howard remarked that, in reference to the different species of cinchona, he had always urged upon the Government the securing, in the first place, of all the species they could get from South America, and giving them all a fair trial under different circumstances. One species would develop much more rapidly in bog earth perhaps, while another would develop in loam. *Succirubra* would develop well in loam. Of course the climate had great influence on these trees, which were peculiarly susceptible of influenee from light and climate in various ways. His object had, therefore, been that the Government should not confine their attention to *succirubra*, but that they should devote it to other species in proportion as they were found to be valuable. The object of his paper was, partly, to enforce that view of the subject; and he showed that the *succirubra*, though so rapid in its development, was not so good as the other. He had not

had an opportunity of examining the *calisaya* upon so large a scale, but it was a better tree, although very delicate in its predilections; and he scarcely knew what to say about the success of that species. He had seen specimens from Darjeeling, which looked exceedingly good, although they did not bear out the full idea he had formed from the appearance. He did not know why. With reference to Professor Bentley's question, he remarked that he had not had any very great experience in the barking of the roots; and therefore what he had said about root barks must be taken as founded on a limited experience. When the roots run under moss, he had no doubt the bark on them would be very rich; but it was very different otherwise, for when the roots penetrated deeply into the ground it was thin and worthless. Mr. M'Ivor succeeded in getting the greatest products from roots covered with moss, and he (Mr. Howard) had no doubt Dr. De Vrij was right in that respect, and to him he readily yielded the palm.—*Chemist and Druggist, November* 15, 1871.

EARTH CLOSETS.

The earth-closet system of disposal of household excreta has been found to be practically impossible, in consequemce of the bulk of the powdered mould which is necessary, the trouble and expense necessary for procuring it in towns, the difficulty of removing the resultant manure, and the impossibility of finding servants cleanly and regular enough to keep the apparatus clean and full of earth. Mr. Edward Stanford, F. C. S., has made to the mechanical section of the British Medical Associaticn a proposal to substitute carbon in some form for the earth.

By the use of charcoal the amount of deodorizer required is reduced to less than a fourth as compared with earth, and by carbonising the manure removed, a constant supply is secured.

The quantity per head to be removed per annum may be fairly estimated at eight cwt., of which about seven cwt. represents urine alone. The amount of carbon required to perfectly absorb the whole of this quantity is less than eight cwt., so that in an ordinary household of ten persons, the total annual quantity required cannot exceed four tons, and the whole removal will probably, owing to the drying action of the charcoal, be about five to six tons.

The carbon closets are also arranged to be quite automatic, and

require no attendance from within. The charcoal is introduced through an aperture in the roof into a reservoir at the top of the house; a closet on each floor draws on this source of supply, and the whole of the product is discharged in a dry deodorized state into a cemented vault in the basement story of the house.

The reservoir need only be replenished, and the vault emptied, once a year. The manure removed can scarcely be distinguished from cinders by an ordinary observer, and it is equally inoffensive.

The value of the material removed is about one shilling per cwt., or eight shillings per head per annum. The household has the charcoal and the material removed without cost. A company called "The Nitro-Carbon Manure Company (Limited)," has been formed in Glasgow, to collect and treat the manure, and supply the charcoal.—*Med. Press and Circ.*, *Nov.* 15, 1871.

NEW USE FOR SULPHUROUS ACID.

The action of sulphurous acid upon phosphates has been recently studied by B. W. Gerland, and he suggests certain practical results that appear to us to be worthy of attention. Aqueous sulphurous acid does not decompose the phosphates in a way to liberate the phosphoric acid, but it transforms them into soluble modifications by the production of double salts. The triple phosphate of lime, known as bone phosphate or the mineral apatite, is at once attacked by aqueous sulphurous acid, and the concentrated solution at 60° Fahr. is decomposed into three different salts—the mono and bi-basic phosphate of lime and sulphite of lime—and if these salts be evaporated in rarified air with alcohol, a series of interesting salts are produced. If these solutions be rapidly heated to boiling under the ordinary pressure of the atmosphere, a new crystaline salt, a double phosphate and sulphite of lime is produced, which is said to be quite permanent, and capable of an extensive application as a disinfectant and fertilizer. The chief interest attaching to Gerlands's research is the discovery of a new way of treating the insoluble phosphates. We say new, because although the proposition was made some years ago to use sulphurous acid in the manufacture of phosphorus, no one has thought of applying the method to the decomposition of the mineral phosphates. We are by no means certain that apatite or bones can be economically decomposed in this way, but it would be well worth trying, as the sul-

phuric acid method is costly, and yields a product which does not keep well, and is difficult of transportation. The new salt of phosphate and sulphite of lime may have uses in hospitals as a disinfectant, and its medicinal properties ought to be studied. Phosphate of magnesia is also readily decomposed by sulphurous acid; in the case of silver, lead and barium phosphate, the sulphurous acid dissolves the salts and yields free phosphoric acid. Sulphurous acid has no action on phosphates of bismuth and tin; the arsenites and arsenates of lime and vanadate of copper behave toward sulphurous acid very much as the phosphates. Oxalate of lime is only slightly attacked by sulphurous acid. In conclusion, we advise manufacturers of artificial manures to try the decomposing action of sulphurous acid upon phosphates, to see if it can replace sulphuric acid, and also whether an economic preparation of the double salt of phosphate and sulphite of lime is feasible.—*Jour. Applied Chemistry, Dec.*, 1871.

NICKEL PLATING.

A small square bar of steel coated with nickel has been repeatedly immersed in water for hours together without showing any signs of rusting; and John Spiller, F. C. S., states, in the *Photographic News*, that he finds it possible to bury it in flowers of sulphur for several days without tarnishing the lustre of the nickel surface. Neither has this latter severe test any effect upon the copper and brass bars upon which the nickel coating has been applied, and these metals may even be immersed in an aqueous solution of nitrate of silver without effecting the reduction of that metal. In one of the angles only, where the coating seemed to be imperfect, was there any indication of silver-reduction in the case of the brass tube, the steel bar being perfectly protected over the whole surface against the action of silver and copper solutions. Here, then, is a most valuable property in electro-deposited nickel. A metal of the zinc and iron group is proof against the action of nitrate of silver; the experiment proves it to be so, and we must regard pure nickel as belonging (from this point of view) to the class of noble metals, resisting, like gold and platinum, the attack of sulphur and of highly corrosive metallic solutions.

The nickel facing, when burnished, has a whiter color than polished steel, although not equal to silver itself, its aspect being rather that of rolled platinum. It withstands the action of heat also remarkably

well; for the fusion-point is very high, and oxidation occurs only at elevated temperatures. For fine balance-beams and weights, lens-mountings, reflectors, laboratory microscopes, Sykes' hydrometers, still-worms, egg-beaters, camera fittings, and a variety of apparatus used by the chemist and photographer, the nickel coating will probably find extensive application. Oval picture-frames of very pretty effect are made of stamped brass coated with nickel. Burnished and matt surfaces of this metal may be used in combination for ornamental purposes.—*Technologist, Dec.*, 1871, *from the Scientific American.*

ON A NEW MICROMETRIC GONIOMETER EYE-PIECE FOR THE MICROSCOPE.

By J. P. Southworth.

After a few experiments by Dr. H. T. Porter and myself, we have succeeded in making an eye-piece micrometer and goniometer which equal in accuracy and surpass in simplicity and cheapness any we have seen, and we have used those of some of the best makers in this country. The objection to the eye-piece micrometers in use is the want of boldness in the division-lines, which makes them fatiguing and hurtful to the eyes. To overcome this objection we were led to experiments in making micrometers by the aid of photography, which have resulted in success. The steps of the process are these:—

1st. A scale of 100 heavy India ink linesf about $\frac{1}{8}$ of an inch apart, are drawn on a dead white surface of Bristol board. The lines marking every ten divisions are six inches long and extend one inch each side of the scale; those marking every five divisions are five inches long and extend one half inch beyond the scale; the remaining lines are four inches long.

2. By photographic process for copying engravings, a negative is taken, on which the scale equals about two inches in length, and is intensified by mercuric chloride and potassium cyanide.

3d. With a copying camera and lens for taking transparent positives for the magic lantern, a transparent positive of this negative is taken on micrometer glass, reducing the scale to the length of one-half inch. In this the lines are $\frac{1}{200}$ of an inch apart. After intensifying, washing and drying, a cover of thin glass is cemented on with Canada balsam, and the slide cut to fit the slit in the micrometer eye-piece.

It can also be mounted with a spring and micrometer screw, like Jackson's micrometer. In our micrometer the lines appear to stand out in relief, and are jet black, while the spaces between them are translucent enough to admit of the accurate measurement of the details of minute algæ and fungi to the $\frac{1}{25000}$ of an inch.

Regarding the goniometer:—

1st. A circle about eighteen inches in diameter is drawn with India ink, divided into degrees. The centre is indicated by a dot, and one diameter is drawn. Every five and ten degrees are indicated by longer lines than those indicating single degrees. Every ten degrees of each quadrant are numbered from 0 to 90.

2d. A negative two inches in diameter is taken by the process referred to above, and from this a transparent positive is taken on a circle of micrometer glass cut to fit the tube of the microscope. It is covered with a circle of thin glass cemented with balsam, and mounted to fit the tube at the focal point of a positive eye-piece. A cobweb is drawn across the diameter of the lower lens. When a crystal is to be measured, the stage is moved till the apex of the angle coincides with the centre of the goniometer and the diameter with one side. The eye-piece is now turned till the cobweb crossing the diameter at the centre coincides with the other side of the angle. Now the number of degrees of the angle can be read at the circumference. The advantage of this over the ordinary microscope goniometers is that in ours the angles of the crystal and the degrees of the goniometer are on the same line of sight within the tube of the microscope, while in the ordinary goniometer the degrees are marked outside the tube. The photographic processes by which the above are made can be learned by consulting any of the standard works on photography, under the sections that treat of copying engravings and taking transparent positives.—*Amer. Journ. Sci. and Arts, Dec.*, 1871.

PRACTICAL OBSERVATIONS ON ESSENTIAL OIL OF MUSTARD SEED.

By Dr. F. A. Flückiger.

The contents of this essay may be *resuméd* as follows:—When to the essential oil of mustard seed 3 parts of concentrated sulphuric acid are slowly and gradually added, care being taken to cool the mixture, sulphurous acid and sulphocarbonic oxide are evolved after

twelve hours' standing. The mixture should either be clear yet very thick, or entirely converted into a crystalline mass; the mixture should then exhibit no longer the peculiar odor of oil of mustard seed, but, in addition to a slight smell of sulphurous acid, that of leek. The color of the mixture should not be turned dark; when 2 parts of the essential oil are mixed with 1 of absolute alcohol and from 6 to 8 of strong liquid ammonia, and heated to 50° for some time, the result should be that, on cooling in open shallow vessels, the mass becomes crystalline (formation of thiosinammin); the mother-liquor from these crystals should leave, by spontaneous evaporation, crystals, but hardly any fluid, which should scarcely, moreover, exhibit the smell of leek. These reactions, along with the specific gravity, characterize mustard seed oil very distinctly.—*Chem. News, Nov.* 24th, 1871, *from N. Jahrb. f. Pharm.*

THE PHYSIOLOGICAL ACTION OF CHLORAL HYDRATE.

By M. A. Byasson.

In a note presented to the Académie des Sciences,* in anticipation of a more detailed memoir, the author gives some of the results of an investigation having reference specially to the physiological action of chloral hydrate. The conclusions, which differ from those of Dr. Oscar Liebreich, and have been founded upon the comparative action of chloroform, formate of soda, hydrate of chloral, trichloracetic acid and trichloracetate of soda upon frogs, rats and dogs,—and incidentally of hydrate of chloral upon men,—are formulated as follows:—

1. The action of hydrate of chloral upon similar organisms is different from that of chloroform.

2. The action is peculiar to that body, and may be considered as the result of two products into which it is decomposed, principally upon contact with the blood, viz. chloroform and formic acid.

3. Trichloracetic acid and trichloracetate of soda differ from hydrate of chloral in their action upon the animal organism, since they both break up into chloroform and acetic acid.

A part of the chloroform formed by the action of the alkaline carbonates of the blood upon the hydrate of chloral is eliminated by the lungs; and a part of the formic acid is found in the urine in the shape of formate of soda. As a practical result of the experiments,

* Comptes Rendus, lxxii, 742.

the author found that he could distinguish three degrees, produced gradually and successively by increasing doses, but varying in individuals.

(1.) A feebly soporific action and slight sedative effect upon the sensitive nervous system, which may be accompanied by intervals of a peculiar agitation, similar to that produced by some dreams.

(2.) An energetic and powerful soporific action, with diminution of sensibility. Then follows a period of calm slumber of variable duration, but without apparent disturbance to the principal functions of life. By means of successive doses administered when the effects of the previous ones have nearly disappeared, this slumber may be extended during a comparatively long time.

(3.) Anæsthetic action, with complete loss of sensibility and muscular power. Death has generally been found to follow when this stage has been reached, in consequence of the inability of the organism to sustain the increasing action of so large a quantity of the drug until its complete transformation and elimination.—*Pharm. Journ. and Trans., Dec.* 16, 1871.

Varieties.

The World's Fair in Vienna in 1873.—The preparations for the proposed international exhibition of Vienna, to take place in 1873, are so far established as to ensure the execution of the project. The site of the building has been selected, and the English engineer, Mr. Scott Russell, is in consultation with the Austrian architects in reference to the plans. The park set apart for the exhibition is larger than has been occupied on any previous occasion, as the following table will show:

London, Hyde Park, 1851, sqr. meters	81,591
Paris, Champs Elysees, 1855	103,156
London, Brompton, 1862	186,125
Paris, Champ de Mars, 1867	441,750
Vienna, Prater, 1873	2,330,631

The principal building will be 950 meters long, but numerous separate buildings will find location on the park.

The commission in whose hands the programme has been placed will endeavor to introduce some new features in the forthcoming exhibition. Among other novelties they wish to have a full display of the raw material and manufactured article of each nation, with statistical information in reference to the amount produced, and the trade therein. Special efforts will be made to have the art collections as complete as possible, and it is proposed to have a loan collection

from all the German museums, similar to the celebrated one at Kensington. Another specialty will be a collection of articles used by different nations in their domestic affairs, kitchen utensils, furniture, dress, ornamental objects, in fact, everything used about a house.

Great efforts will be made to have the oriental nations better represented than they have been at any previous exhibitions.

As the Austrian nation has never had an exhibition of this character, it is probable that they will put forth great exertions to have it worthy of the empire. The opportunity ought not to be neglected by the manufacturers in this country. We produce many things that other nations would wish to have if they were aware of their existence, and this is an occasion for displaying them. Our government could with great propriety send all articles free of charge to Trieste, whence they would no doubt be transported by the Austrian government to Vienna also free. We ought to have committees organized for the selection of proper articles to be forwarded, and to take pains that we are well represented. In the matter of household conveniences, we claim that many of our mechanics are better off than some of the noblemen on the continent. It would be a great thing to see the common every-day domestic utensils set up in a model house to illustrate how we live. Our machine made pails, clothes-pins, sewing machines, cooking stoves, with fixtures, would astonish the common people of Austria, who have the rudest kind of articles.

We cannot now enumerate all that we ought to send. It will be remembered that at the Paris exhibition of 1867, nearly everything sent from this country took a prize. If we exercise some judgment in the selection of articles, we may anticipate a similar triumph at Vienna in 1873.—*Journal of Applied Chemistry, December*, 1871.

Sugar Factories in Europe.—Seventy-five new sugar factories have been established in Europe in 1870, at the end of which year their total number was 1507. In France there were 483, in the Zollverein 310 (384 according to another statement), in Russia 283, in Austria-Hungary 228, in Belgium 134, in Poland 42, in Holland 20, in Sweden 4, in Italy and Great Britain each 1.—*Chem. Centr. Bl.* 1871, *Oct.* 11.

Production of Bismuth.—The market is almost totally supplied with bismuth from Saxony, which produces annually 32,000 pounds of this metal; one establishment, the blue color works, alone 24,000 pounds.—*Ibid, Oct.* 18.

Liquid for Removing Spots.—This compound sold under the name of *Liqueur Bernhard*, is mentioned by way of warning, as it is not a new article, as it pretends to be, contains no benzine or substance of that kind, and is moreover ruinous to delicate colors, on account of the potash which it contains; its composition is:

Ox galls,	100 Grammes.
Potash,	50 "
Water,	1 Kilogramme.

The potash is first dissolved, and the gall then added. Soda may be substituted for the potash.—*Amer. Chemist, Nov., from Monit. de la Teint.*, 1871, *No.* 17.

On Bromide of Potassium.—Dr. Falières.—A great portion of this memoir relates strictly to the therapeutics, but, as regards the testing of the purity of bromide of potassium and its preparation more especially for medicinal purposes, the following suggestions are made:—1 grm. of bromide of potassium, previously pulverized, and put into a glass-stoppered bottle, is dissolved in from 30 to 40 grms. of distilled water. To this solution is added a solution of nitrate of silver, containing 1·427 grms. of that salt. When the precipitate has settled, there is added to the liquid, by means of a burette, a drop of a decinormal solution of nitrate of silver, which, if the bromide is pure, will not produce any further precipitate—the fact being that 1 grm. of the bromide requires precisely 1·427 grms. of nitrate of silver for precipitation, while 1 grm. of chloride of potassium requires 2·279 grms. of the argentic nitrate. It is clear, however, that the bromide will have to be tested for the absence of iodide, carbonate, and sulphate of potassium, and of nitrate of soda. As regards the preparation of bromide of potassium, the author proposes the following process:—100 grms. of bicarbonate of potassa are dissolved in 500 grms. of water; to this solution, 80 grms. of pure bromine are added, and, as soon as the effervescence ceases, there is also added a mixture of 90 parts of pure distilled water and 30 parts of liquid ammonia (sp. gr. = 0.875). The liquid is next evaporated to dryness, care being taken to apply a gentle heat as long as any vapors of carbonate of ammonia are given off. The residual saline mass is next ignited, so as to convert the bromate of potassa into bromide of potassium; the salt thus obtained is, after cooling, re-dissolved in pure distilled water, an aqueous solution of bromine added to this solution, which is next evaporated for crystallization. By the addition of the ammonia, bromide of ammonium is first formed, and this salt, acting upon the undecomposed carbonate of potassa, converts it into bromide, while carbonate of ammonia is volatilized.—*Chemical News, Dec.* 8, *from Journal de Pharmacie et de Chimie, October*, 1871.

Cure for Corns.—Bathe the feet well in warm water, then with a sharp instrument pare off as much of the corn as can be done without pain or causing it to bleed, and dress once a day with the following salve:

℞.	Black Oxide of Copper, ...	gr. 15,
	Lard, ...	℥ s. M.

—*Chem. and Drug., Lond., Nov.* 15, 1871.

Extract of Horse Chestnut Wood.—For dyeing heavy black upon silk, an extract of horse-chestnut wood has recently acquired great importance. It is preferred to nut-galls or divi divi for this purpose. To what particular principle in the wood is to be ascribed the important property of which use is now made has not been determined with certainty.—*Ibid.*

Chloroform and Glycerin.—Dr. W. Murdock, of New York, recommends the following formula as a convenient mode of administering chloroform: Glycerin, six ounces; chloroform, two ounces. This solution is clear, and not unpleasant in taste or odor. One drachm contains fifteen minims of chloroform.—*Atlanta Med. and Surg. Journ., Nov.*, 1871.

Vienna Yeast.—Dr. Vigla.—This yeast is prepared in the following manner: —Previously-malted barley, mais and rye are ground up and mixed, next put into water at a temperature of from 65° to 75°; after a few hours, the saccharine liquid is decanted from the dregs, and the clear liquid brought into a state of fermentation, by the aid of some yeast. The fermentation becomes very strong, and, by the force of the carbonic acid which is evolved, the yeast globules (the size of which averages from 10 to 12 millims.), are carried to the surface of the liquid, and, forming a thick scum, that substance is removed by a skimmer, placed on cloth filters, drained, washed with a little distilled water, and next pressed into any desired shape by means of hydraulic pressure, and covered with a strong and stout tightly-woven canvas. This kind of yeast keeps from eight to fourteen days, according to the season, and is, both for bakers and brewers, very superior to that ordinarily used; the extra good qualities of Vienna beer and bread are partly due to the use made of this yeast in preparing these articles.—*Chemical News, Dec.* 8, *from Journal de Pharmacie et de Chimie October*, 1871.

New Process of Panification.—Dr. Sézille.—The wheat is first deprived of its epispermum (outer cover or husk) by means of properly constructed machinery; the decorticated grain is next several times acted upon by tepid water (about 80° for the first bath and 40° for the subsequent ones), whereby the gummo-resinous cover of the grain is dissolved and removed. This removal is necessary on account of the fact that this substance becomes very deep brown, almost blackish, colored by fermentation of the dough; the grain at the same time absorbs from 65 to 70 per cent. of water, and is then reduced to a paste by means of machinery very similar to that used in chocolate mills. This perfectly white paste is next leavened, and after fermentation ready for baking. By this process, from the same quantity of grain which by the usual process only yields 108 to 110 kilos. of bread, the yield is increased to 145 kilos. of very superior quality and far greater nutritive power; moreover, a very considerable saving of labor and expenses connected therewith is effected by the application of this new process, which has been thoroughly tested by competent and independent scientific as well as practical men.—*Chem. News, Lond., Dec.* 1, 1871. *from Les Mondes, Nov.* 23, 1871.

Chromatized Gelatine—It has been recently discovered that gelatine, in the presence of a salt of chromium, is rendered insoluble by the chemical action of light. The most important application of this "chromatized gelatine," thus far, is in what is called the "heliotype process." This is virtually a new art of lithography, which promises wholly to supersede the old method. If paper coated with a solution of bichromate of potash and gelatine is exposed to the light, the gelatinous film becomes to all intents and purposes a lithographic stone, from which an indefinite number of copies of a photographic negative may be printed.

This chromatized gelatine is also employed in a new process for rendering woven fabrics waterproof. Cotton and linen that have been soaked in a weak solution of gelatine or glue and bichromate of potash become waterproof on exposure to daylight, without becoming impervious to air.—*Technologist, Dec.*, 1871.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—At a meeting of the Board of Trustees, held December 5th, Prof. Procter offered the following resolution, which was unanimously adopted:

In view of the destruction of the Library of the Chicago College of Pharmacy, be it resolved that a set of the "American Journal of Pharmacy," as complete as can be furnished by this College, be hereby donated to the Chicago College of Pharmacy.

On motion, a Committee was appointed to complete as far as practicable the set of the "Journal," to have the volumes bound, and to add thereto such other books as they may be able to collect for the Chicago College. The Committee consists of Professor Wm. Procter, Thos. S. Wiegand, Joseph P. Remington, James T. Shinn and Alfred B. Taylor.

The Board has also somewhat modified one of the regulations about graduation. Two examinations are held annually; one in March, at the close of the lectures, and one in June. The latter was mainly established to accommodate those students who at the Spring examination have not accomplished their term of apprenticeship, or who are prevented to come forward on account of sickness, &c. This provision is not affected by the adoption of the following additional sentence to Art. X, Chap. V of the By-Laws of the Board of Trustees: "but no student rejected at the Spring examination shall be eligible at the one held in the succeeding June."

At an early date last year the Board of Trustees appointed a Committee, consisting of Charles Bullock, James T. Shinn, and John M. Maisch, to draft a law regulating the practice of pharmacy and preventing the adulteration of drugs and medicines in the city of Philadelphia, to be presented to the Legislature of Pennsylvania meeting in the beginning of January. This draft was submitted to the Board of Trustees, in November last, somewhat modified, and afterwards put into legal phraseology by A. E. Letchworth, Esq.

On the 19th of December last a meeting of the pharmacists and druggists of Philadelphia was held at the lower lecture room of the College of Pharmacy, when Dr. Francis Zerman was called to the chair and Mr. George C. Bower appointed Secretary. The draft of the law was then read, considered by sections, and after several amendments adopted. The Committee of the College, together with the Chairman of the meeting, were appointed a Committee to lay the matter before the Legislature, and were empowered to add to their number if deemed necessary.

At the quarterly meeting of the College, held Dec. 26th, the draft as amended by the meeting held on the 19th was approved.

We deem the law, though stringent in its provisions, calculated to protect the public as well as the conscientious pharmacist, and hope that it may be passed. Not having the space to print this draft or enter into its details, we are compelled to defer comments until we shall hear of its fate before the Legislature.

New York College of Pharmacy.—We stated in our last number that a Committee of Conference had been appointed to confer with the Board for licensing druggists, &c. Two members of this committee, Messrs. Hegeman and Balluff, had an interview with Prof. Doremus, the President of the Licensing Board, which, however, did not lead to any practical results. At the special meeting of the College held Nov. 25th, a committee was appointed, consisting of Messrs. Wright, Peixotto, Weissmann, Jr., Cassebeer, and Rice, to confer with a similar committee appointed by the Apothecaries' Union, and consisting of Messrs. Robbins, Ramsperger, Balluff, Amend, and Dr. Fr. Hoffmann. This Conference Committee was joined by delegates from the two German pharmaceutical societies of New York and adjoining cities, to revise the draft of a law proposed by the Apothecaries' Union, to which we alluded on page 479 of our last volume. This draft was remodelled by the joint committee, and considered at a special meeting of the New York College of Pharmacy held Dec. 19th, at which the draft was amended so as to empower this College to elect the Pharmaceutical Board out of the most competent pharmacists of the city of New York, for which city alone this law is applicable.

The College appointed Messrs. Hegeman, Balluff and Peixotto a committee to present this draft to the State Legislature, at its approaching session, through Senator Weissmann, who is a member of the New York College of Pharmacy.

Louisville College of Pharmacy.—We learn from the "Richmond and Louisville Medical Journal," of December, that this College has opened its course of lectures, with a class of 21 students.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the College was held, at the College building, December 26th, 1871, Dillwyn Parrish, President, in the chair; 14 members present.

The minutes of the last meeting were read and approved. The minutes of the Board of Trustees were also read and approved.

Wm. Procter, Jr., for the Committee on the early closing movement, reported that two meetings had been held by those engaged in the dispensing business, the result being the general adoption of the hour of 10 P. M. for closing stores.

The proposed act intended to regulate the sale of medicines and poisons, and to prevent adulteration in drugs and medicines, as adopted by the druggists of Philadelphia at a meeting held on the 19th instant, was read and approved. The proposed act had previously been acted on and approved by the Board of Trustees of the College.

On motion, then adjourned.

Charles Bullock, *Secretary.*

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held on the afternoon of December 19th, 1871. Owing to the general meeting of Druggists, on the proposed Pharmacy Law, this meeting did not assemble till near 5 o'clock, and some of the business prepared was postponed till next month.

Dr. Wilson H. Pile presided. The reading of the minutes of the preceding meeting was dispensed with, these having been published in the Journal.

Hance, Brother and White presented the College with one of their superior Drug Mills, supported on an iron stand; on motion a unanimous vote of thanks was tendered.

Five bound volumes, from 1852 to 1856 inclusive, of the American Journal of Pharmacy, was presented by J. A. Heintzelman.

Prof. Maisch exhibited a large gourd, presented by Bullock & Crenshaw, which had been filled with Barbadoes aloes, and from which the entire contents had been removed by tapping after sawing it in two; no adhering portions of aloes remained upon it. A vote of thanks was tendered to both donors. Prof. Maisch also exhibited Jujube Fruit used in Southern Europe as an addition to expectorant remedies; Myrobalans used for the preparation of tannin; several varities of Cardamoms, including the Ceylon and Malabar from the London market, the latter whitened by magnesia. Fennel seed from Fœniculum officinale.

Some fine specimens in powder and in pseudomorphic masses, of bi-carbonate of soda, as taken from the carbonating chamber of the Pennsylvania Salt Works, at Natrona, Pa., were presented to the College. Prof. Procter read a letter from Henry Pemberton, a graduate of this College, now in charge of these extensive works. The meeting was informed that a single charge of this chamber weighs 525,000 lbs. The quality of the salt appeared to be superior; in the absence of Prof. Bridges, the subject was postponed till the next meeting.

Prof. Parrish called attention to the new excipient for making pills, introduced by J. B. Barnes at a recent meeting of the Pharmaceutical Society of Great Britain—soluble cream of tartar; bitartrate of potash in a solution of borax, inspissated to the consistence of mucilage.* He also showed pills of Dover's powder, of sulphur, and of chloral hydrate, made with it and minute quantities of tragacanth. Those of chloral hydrate, though round and firm, are covered with crystals, they are necessarily kept in a vial.

In allusion to the difficulty of making salts of iron, especially sulphate, into pill, owing to the crumbling of the mass. he mentioned that if a paste of dextrine is used as the excipient, there is no difficulty in making a perfectly plastic mass; he exhibited pills of dried sulphate of iron, each containing three grains, very nearly equal to five grains of the crystals made with dextrine; they were of convenient size. He remarked that when this mass crumbles it is from a deficiency of water, and when water is again added it becomes quite plastic, though it is more bulky on each addition of water. The

* See page 17 of the present number.

soluble tartar excipient does not appear well suited to this salt. Robert England expressed a preference for manna as an excipient in making difficult masses. Dr. Pile and others use a mixture of tragacanth and glycerin with satisfactory results. After further conversation the meeting adjourned.

CLEMMONS PARRISH, *Registrar.*

Editorial Department.

SCIENTIFIC JOURNALS PECUNIARILY CONSIDERED.—Some two or three months ago, we received from a valued friend the following communication, which we have been compelled to lay aside for want of room, but which we now insert:

DEAR SIR:—A common expression with us out West is "business is business." As an inducement to patronize scientific journals, especially pharmaceutical, I may be permitted to offer the following: A few days since, one of our customers, who had been in ill health for some time past and had just returned from New York, where he had been to consult some of the eminent doctors of medicine, brought us several prescriptions, which he wished to know if we could prepare, as he would want them filled before long. I read them over; all plain enough except the last, which read: "Syr. Calcis Lacto-phosphatis," &c. The person being an intelligent gentleman, I told him the prescription contained a new remedy—an article with which I was not acquainted—but that if he could wait a few days, I thought I might come across it in some of the pharmaceutical journals which I had; that owing to press of business, &c., I had got behind in reading them. He agreed. The next night, after reading the May number of the *Journal of Pharmacy*, I took up the June number, and began cutting the leaves; and I must acknowledge, somewhat to my surprise, found the second article was on the same new preparation which it was necessary for me to know about, by the very person on whose blank the prescription was written. I will just add, that in this short communication I found what was equal in dollars and cents to at least one year's subscription, to say nothing of the satisfaction it afforded. H.

While endorsing the foregoing sentiments, we desire to add, that we wish sincerely all the members of our profession might be as liberal as the author of the formula mentioned, and like a number of others of our fraternity, had no secret formulas of their own, but were disposed to let others profit from their experience. The *American Journal of Pharmacy* is open to all who desire to disseminate the results of their practical or scientific experience.

CREDIT TO WHOM CREDIT IS DUE.—Our predecessor in the editorial chair of this Journal has repeatedly been under the necessity of complaining of the disregard of journalistic right by several contemporaries, and we are constrained to reiterate the statements made by him at the beginning of the last volume, as applicable also for the past year, namely: that a number of original articles, translations and abridgements, furnished to this Journal, have been going the rounds under false colors. We respectfully suggest to editors the propriety of giving proper credit to the Journal to which it may be due, even though but a paragraph or two may be clipped from our "Gleanings," "Varieties" or original matter. It has been our aim in no case to omit such reference.

Aid for the Chicago College of Pharmacy.—On another page we publish the action of the Philadelphia College of Pharmacy in aid of its young and unfortunate sister institution, and we take great pleasure in announcing that in England a similar movement has been inaugurated, as we learn from the Pharmaceutical Journal and Transactions of December 2d. Professor Attfield, in conjunction with Mr. Haselden, the President of the Pharmaceutical Society, Mr. Hills, the Treasurer, Mr. Brady, the President of the Pharmaceutical Conference, and Sir Thomas Dakin, the late Lord Mayor of London, have formed the nucleus of a committee for collecting books, specimens, apparatus, etc., and funds with which to purchase others. The *Pharm. Journal* of December 16th, informs us that Professor Attfield has received a letter from Dr. J. L. Soubeiran, stating that he and his colleagues of the school of pharmacy in Paris desire to contribute to the fund, and that a case of books will shortly be forwarded to London for that purpose. Such friendly acts make us feel in reality that pharmacy unites her followers into a large brotherhood, wherein the weal and the woe that may befall one of its members, is felt by all. There is now, we judge, no uncertainty about the early resumption of its educational functions by the Chicago College, and we invite all who are willing to contribute to its library or cabinets, to communicate with Professor William Procter, or with the Editor, who will gladly place all contributions into the hands of the committee.

Elixir Quiniæ Ferri et Strychniæ Phosphatis.—On page 531 of our last volume we published a formula for this elixir, in regard to which we have received several letters, which show that the formula has not been correctly interpreted by all our readers. The quantity made by the formula is f℥vijss or 60 fluidrachms containing 30 grains of the alkaloid quinia (not the sulphate.) The crystallized sulphate of quinia equals about 75 per cent. of its weight of hydrate of quinia, or 30 grains of the latter are equal to about 40 grains of the sulphate, so that each fluidrachm of the preparation would contain enough quinia to represent two-thirds of a grain of the sulphate; if intended to represent fully one grain of this salt, the hydrate of quinia in the formula should be increased to 45 grains.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Gmelin-Kraut's Handbuch der Chemie. Anorganische Chemie in drei Bänden. Sechste umgearbeitete Auflage. Mit Abbildungen in Holzschnitt. Herausgegeben von Dr. Karl Kraut, Professor der Chemie an der polytechnischen Schule in Hannover. Heidelberg: Carl Winter's Universitätsbuchhandlung, 1871. *8vo.*

Gmelin-Kraut's Handbook of Chemistry. Inorganic Chemistry in three volumes. Sixth edition, thoroughly revised. With illustrations in wood cuts.

Gmelin's handbook of chemistry has a world-wide reputation; it is an everlasting monument of patient research, and of the critical sifting of a countless number of facts and of theories, the results of the labors of hundreds of investigators. There is no chemical work in existence in which the entire scientific

literature has been so thoroughly explored, so faithfully reported and so conveniently and methodically arranged. Translated by Henry Watts and published by the Cavendish Society, it has also become part of the English scientific literature. In the German language, the entire work—including the organic chemistry—has met with four revisions and editions, and the inorganic portion alone even with five.

While the value of the work is everywhere unquestioned, we have now before us a sixth edition, in which Gmelin took no part, and the question arises, therefore, whether this new edition sustains the reputation acquired by the older ones? The present editor and reviser, Dr. Kraut, took charge of the unfinished portion of the organic chemistry after the death of Gmelin in 1853, and the retirement of Dr. List from the editorial labors, and, aided by several learned chemists, he finished the work and two supplementary volumes a couple of years ago, to the entire satisfaction of every critical examiner.

The sixth revision of the inorganic part will be accomplished by a division of the labor, so that the first volume, containing the general, theoretical and physical part, will be revised by Prof. Dr. A. Naumann, of Giessen, a portion of the non-metallic elements by Prof. H. Ritter, formerly of Hanover, now of Kanisawa, Japan, a portion of the metals by Dr. S. M. Jörgensen, of Copenhagen, and the remainder of the non-metallic and metallic elements by the general editor, Prof. Kraut. This arrangement will render possible the early completion and uninterrupted simultaneous publication of the different volumes.

We have upon our table, numbers one to four of the second part of Vol. I, containing Prof. Ritter's and a portion of Prof. Kraut's revision, and the two first numbers of Vol. III, revised by Dr. Jörgensen. The former embraces oxygen, hydrogen, carbon, boron, phosphorus, sulphur, selenium, iodine and bromine; the latter contains zinc, cadmium, indium, tin and thallium.

The subjects are sufficiently numerous to give a correct idea of the manner in which the revision has been accomplished, and to judge of the character the work is likely to possess, when finished. In all cases we find a complete and pretty exhaustive index of the literature bearing on each subject, up to the time of publication, and in the text this literature is judiciously used. Antiquated views, which have been superseded by later investigations, have been dropped or are mentioned merely to give a correct historical sketch of the science, while on the contrary, all established facts are carefully enumerated, and contradictory statements critically examined.

The diction is terse, clear and comprehensive, of the same character which has met with universal approbation in the original work; the judicious and reliable selection and convenient arrangement of the multitude of facts deserves especial approving comment. The same commendation is due to the publishers for the general getting up of the work as far as it has appeared: the types are new, distinct and clear, the paper strong, and the size of the pages larger than heretofore.

The different volumes will be published simultaneously in numbers of 80 to 88 pages at ⅓ thaler each. Chemists and those interested in chemistry, who are conversant with the German language, will doubtless hail with satisfaction the appearance of this new edition.

Vick's Illustrated Catalogue and Floral Guide for 1872. Rochester, N. Y., James Vick. 8 vo. 120 pages.

We never refer in these columns to trade catalogues, which we receive frequently. If we make an exception with the one before us, it is done for two features of it, which we consider particularly appropriate, not merely to the lover of flowers, but to the student of botany; we refer to the very numerous well executed illustrations of flowers and ornamental plants and to the addition of the natural order after the common names. The botanical names of the species are given, as also of the varieties produced by cultivation. These features we consider a valuable aid to the beginner, and even to the more advanced botanist, whose time does not permit him to pay much attention to the botanical origin of the numerous ornamental plants usually cultivated.

OBITUARY.

Robert James Taylor died December 21st, 1871, at Newport, R. I. The deceased had succeeded his father, and continued the business, for nearly 40 years, until the time of his death. He was highly esteemed for his sterling qualities as a man and citizen in the community in which he spent nearly his entire life. and this respect was evinced by the numerous offices of honor and trust to which he had been elected. After the passage of the law regulating the practice of pharmacy in the State of Rhode Island, Governor Padelford appointed Mr. Taylor a member of the State Pharmaceutical Board, which office he held at the time of his death. He had been a member of the American Pharmaceutical Association for 12 years, and, though never taking any active part in its proceedings, always evinced considerable interest in its welfare. He leaves a wife, a daughter and four sons.

John Balmer died recently at St. Leonard's, in his seventy-second year. He was fond of experimental pharmacy, and the occupation of what might be, perhaps, called his leisure was devoted to the investigation of new and supposed better methods of exhibiting pharmaceutical preparations. He was connected with the introduction of pancreatic emulsion, of the sulpho-carbolates, &c.

George Whipple died, at an advanced age, on Oct. 31st. He had been a very active member of the Pharmaceutical Society of Great Britain during the first twenty years of its existence, and contributed many valuable papers to the "Pharmaceutical Journal and Transactions." Since 1858 he had been living in retirement, in consequence of advancing years and declining health.

Dr. Adolph Strecker.—The University of Würzburg has sustained a heavy loss in the unlooked-for death of this excellent chemist, who departed this life in the prime of manhood, on the 7th of November last, as we learn from the November number of Buchner's N. Repertorium. One of the most capable of Liebig's pupils, he became, while rather young, Professor of Chemistry at the University of Christiania. Subsequently, he followed a call to Tübingen, and about two years ago accepted the chair at Würzburg, made vacant by the death of Prof. Scherer. Many of Strecker's investigations are of great importance to pharmacy, and have been noticed more or less extensively in this journal during the last 16 or 18 years.

Correction.—The paper entitled Solvents for Indigo, published on page 562 of our last volume, was taken from the "American Chemist," Nov., 1871.

In the third line, second column of the table on page 9 of this number, ℥iij should be corrected so as to read ʒiij.

CATALOGUE

OF THE

Class of the Philadelphia College of Pharmacy,

FOR THE FIFTIETH SESSION, 1871—72.

With a List of their Preceptors and Localities.

MATRICULANTS.	TOWN OR COUNTY.	STATE.	PRECEPTOR.
Addington, W. B.	Norfolk,	Virginia.	W. W. Scott, M. D.
Addis, T. D.	Easton,	Pennsylvania.	J. S. Hunt, M. D.
Allen, C. Sumner,	Cleveland,	Ohio.	Arthur Mosely.
Alvarez, Miguel,	Cienfuegos,	Cuba.	
Amsden, W. S.	Dubuque,	Iowa.	T. B. Tuttle.
Antill, Joseph, Jr.	Philadelphia,	Pennsylvania.	S. Levin Dilks.
Apple. A. A.	"	"	J. Vanbuskirk, M. D.
Armor, Alpheus,	Alleghany,	"	
Arnold, Joseph,	Philadelphia,	"	Charles E. Haenchen.
Ash, J. Frank,	"	"	S. Mason McCollin.
Bailey, M. D., Oliver A	Ipswich,	Massachusetts.	U. S. Army Dispensaries.
Barrick, Wm. M.	Huntingdon,	Pennsylvania.	D. H. Barrick & Co.
Beck, J. Howard,	Yardville,	New Jersey.	C. W. Hancock.
Beecher, Benjamin C.	Philadelphia,	Pennsylvania.	A. Hansell & Bro.
Bell, William,	"	"	J. McKey.
Berridge, John L.	"	"	W. D. Harrison, M. D.
Brillé, George,	"	"	C. A. Weckshagen.
Bicker, Wm. B.	"	"	E. Parrish.
Bishop, A. B.	Dover,	Delaware.	R. J. Rogers.
Bitler, Henry H.	Philadelphia,	Pennsylvania.	Bean & Stevenson.
Brakeley, Philip F.	Phillipsburg,	New Jersey.	W. Opdycke.
Bley, Alphons,	Philadelphia.	Pennsylvania.	John Bley.
Bolton, A. H.	"	"	J. S. Everton.
Bond, Munroe,	Manchester,	New Hampshire.	J. Oddy, M. D.
Borell, Henry A.	Philadelphia,	Pennsylvania.	O. S. Hubbell.
Boyer, Edward L.	Lyons,	"	H. C. Blair & Sons.
Bridger, Paul,	St. Johns,	Antigua, W. I.	
Bringhurst, John H.	Philadelphia,	Pennsylvania.	L. A. Matos.
Brown, C. S.	Jackson,	Mississippi.	Buck & Baley.
Brown, Thomas D.	Philadelphia.	Pennsylvania.	Bullock & Crenshaw.
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Budd, Frank M.		New Jersey.	John Wyeth & Bro.
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Buss, Milton M.	Bethlehem,	Pennsylvania.	M. M. Selfridge & Co.
Capp, Harry M.	Lebanon,	"	J. A. Armstrong, M. D.
Cave Joseph,	Philadelphia,	"	French, Richards & Co.
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Chedister, Robert Y., Jr.	Newark,	New Jersey.	Benjamin E. Smith.
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Desh. Edward E.	Bethlehem,	"	J. M. Maisch.
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Hill, Lafayette, Jr.	Covington,	Tennessee.	J. C. Delacour.
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Hommann, James W.	"	"	C. C. Hughes.
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Hufnal, Andrew M.	"	"	C. H. Needles.
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Lange, C. Richard.	"	"	French, Richards & Co.
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McElhenie, T. D.	Wooster,	"	T. A. Lancaster.
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Mateer, C. C.	Martinsburg,	"	Risk & Musson.
Mateer, John D.	Mechanicsburg,	"	A. P. Blomer.
Mattison, Richard V.	Solebury,	"	John Wyeth & Bro.
Matos, Louis A.		Cuba.	
Meyer, C. Carroll,	Philadelphia,	Pennsylvania.	Thomas J. Husband, Jr.
Miles, J. J.	Vicksburg,	Mississippi.	Hardaway & Co.
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Miller, W. H.	New Philadelphia,	Ohio.	T. A. Lancaster.
Mitchell, Charles L.	Philadelphia,	Pennsylvania.	Hance, Bro. & White.
Moffit, Wm. G.	"	"	John Wyeth & Bro.
Muringer, Jules,	"	"	C. Ellis, Son & Co.
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Newhard, Robert M.	Lebanon,	"	E. L. Reeves.
Nice, Harry J,	Jersey Shore,	"	J. L. Curry.
Nicholas, W. C.	Easton,	"	Joseph P. Bolton.
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Ouram, Charles,	"	"	G. W. Ouram.
Owen, William,	"	"	Jos. L. Shoemaker.
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Parker, Joseph,	"	"	C. Ellis, Son & Co.
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Pearce, H. T.	Philadelphia,	"	P. F. Hyatt, M. D.
Petzelt, Christopher,	"	"	Robert Platzer.
Phillips, C. S.	Mahonoy,	"	C. C. Hagenbuck.
Pierpoint, Ernest,	Young America,	Illinois.	N. Pierpoint.
Porter, Henry W.	Philadelphia,	Pennsylvania.	Peck & Co.
Potts, David G.	"	"	R. Keys, M. D.
Procter, Wallace,	"	"	Wm. Procter, Jr.
Radefeld, Frederick,	"	"	Gustavus Radefeld.
Raser, A. P.	Reading,	"	E. Parrish.
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Richardson, T. S.	Philadelphia,	Pennsylvania.	R. Keys, M. D.
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Riley, Christopher,	Philadelphia,	"	E. Beale, M. D.
Ritter, Eugene D.	Easton,	"	Bernheimer & Kerlin.
Roeder, J. E.	Hosensack,	"	Richard Opperman.
Rohn, A. B.	Easton,	"	H. F. Bucher.
Roth, Milton W.	Marietta,		S. T. Jones.
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Rowe, J. M.	Tarboro,	North Carolina.	Charles Shivers.
Rowley, Isaac H.	Philadelphia,	Pennsylvania.	Hance Bro. & White.
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Savage, Frank S.	"	"	J. R. Angney, M. D.
Schmidt, Henry,	Cincinnati,	Ohio.	Spannagel & Radefeld.
Scott, James,	Chester,	Pennsylvania.	J. M. Stoever.
Shaw, G. J.	Columbus,	Texas.	R. D. Moore & Co.
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EXCHANGES RECEIVED SINCE OUR LAST ISSUE.

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Feb 5

VOL. XLIV.] [NO. II.

AMERICAN JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] FEBRUARY, 1872. [VOL. II, NO. II.

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NOTICE TO READERS.

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All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

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AMERICAN JOURNAL OF PHARMACY.

FEBRUARY, 1872.

PEPSIN. A NEW, PRACTICAL AND RELIABLE METHOD TO PREPARE IT; ITS PROPERTIES AND DIGESTIVE STRENGTH.

By E. Scheffer.

When publishing my paper upon Saccharated Pepsin (Amer. Journ. of Pharm. Jan., 1871) my intention was to continue the experiments, then only hinted at, and to publish the results. I have since made a large number of experiments, some of which I deem of sufficient importance to be made known, although my researches are not finished.

The various methods for the preparation of Pepsin, as given by different authors, seem to be intended mainly for the purpose of experiments, and are so complicated that the difference in the properties characterizing the products is readily accounted for. The student of physiology may not shun the trouble attending these processes, but the manufacturer could not possibly resort to them, even if he was so inclined and no doubt wished for a more simple and practical method.

The author of Leop. Gmelin's Hand-book of Chemistry, in the last volume of the work (issued in 1870) says, under the heading of Pepsin: "*The Pepsin of commerce is either mucus of the stomach, scraped off and dried, or a mixture of Pepsin, Peptons and Starch, containing a little lactic acid.*" In what way these commercial pepsins were prepared it is difficult to say, as most manufacturers have their own way and keep it a secret; but in Europe, as well as in this country, most of these preparations died almost as soon as they were brought into existence, as they did not come up to what they were represented to be.

In the summer of 1870, while working on and experimenting with *Liquid Pepsin* (Amer. Journal of Pharm. March, 1870,) and at the same

time trying to improve it, I discovered some tests which I considered useful in the preparation of dry pepsin. Before this I had wished to prepare pepsin in the dry state, but was not inclined to follow the tedious and in some way uncertain processes usually given.

Following up the hint received by certain tests with a number of experiments, I succeeded at last to obtain a very satisfactory product.

The action of saturated solutions of some of the neutral salts of the alkalies on different protein substances induced me to try their effect on pepsin. For this purpose I prepared an extraction of the mucous membrane of fresh hogs stomachs with water, acidulated with muriatic acid, which after repeated filtrations formed an opalescent yellowish liquid. Equal volumes of this liquid and of a saturated solution of sulphate of soda, when well mixed together, formed a precipitate, which was collected on a filter, pressed and dried; a very small quantity of it, dissolved in water with the aid of a few drops of hydrochloric acid, dissolved coagulated albumen. Other saturated saline solutions were now experimented with, viz: of sulphate of magnesia and chloride of sodium, and also a solution of chloride of calcium of 1.27 spec. grav.

By these solutions precipitates were likewise found to form, possessing properties identical with that obtained by sulphate of soda, but I finally decided to employ chloride of sodium as the precipitant, as by a comparative test, which of the four different salts would produce the most precipitate, the proportion was: chloride of sodium 4, sulphate of magnesia 3½, sulphate of soda 2, chloride of calcium 1, so that chloride of sodium gave twice as much precipitate as sulphate af soda, and four times as much as chloride of calcium. But besides the larger yield, the sodium chloride has the preference for its antiseptic properties. A part of the precipitate, formed by sulphate of magnesia and allowed to remain in the liquid, had a putrid odor after the third day, while a moist precipitate, formed by chloride of sodium and set aside purposely for experiments, proved to be good after six months.

Preparation of Pepsin. On this basis I now began to prepare pepsin. Of the well cleaned fresh hog stomach the mucous membrane is dissected off, chopped finely and macerated in water, acidulated with muriatic acid, for several days, during which time the mass is frequently well stirred. The resulting liquid, after being strained, is, if not clear, set aside for at least twenty-four hours in order to

allow the mucus to settle. To the clarified liquid the same bulk of a saturated solution of sodium chloride is added, and the whole thoroughly mixed. After several hours the pepsin, which by the addition of chloride of sodium has separated from its solution, is found floating on the surface, from whence it is removed with a spoon and put upon cotton cloth to drain; finally it is submitted to strong pressure, to free it as much as possible from the salt solution.

The pepsin, when taken from the press and allowed to become air dry, is a very tough substance, and presents, according to thickness, a different appearance, resembling in thin sheets parchment paper, and in thick layers sole leather; its color varies from a dim straw yellow to a brownish yellow. Besides a little mucus it contains a small quantity of phosphate of lime and chloride of sodium, which, however, do not interfere with its digestive properties, as they are found also in normal gastric juice.

Saccharated Pepsin. To work it into *Saccharated Pepsin* (Am. Journ. of Pharm. January 1871) the damp pepsin, as it is taken from the press, is triturated with a weighed quantity of sugar of milk to a fine powder, which, when having become air dry, is weighed again, the quantity of milk-sugar subtracted and so the amount of pepsin found. The strength of this dry Pepsin is now ascertained by finding how much coagulated albumen it will dissolve at a temperature of 100° F. in five or six hours, and after this sufficient milk sugar is added to result in a preparation of which ten grains will dissolve one hundred and twenty grains of coagulated albumen, and this preparation I have called *Saccharated Pepsin*.

Purification of Pepsin. Anxious to get the pepsin in its purest state, if possible, chemically pure, I tried different methods, but have not succeeded as yet. In order to get a purer article I re-dissolve the pepsin, as obtained after expression, in acidulated water, filter the solution through paper, and precipitate again with a solution of sodium chloride; the precipitate, after draining and pressing, is now free of phosphate of lime and mucus, but contains yet salt. In the freshly precipitated state the pepsin is very readily soluble in water and cannot therefore be freed from adhering salt by washing.

By allowing the pressed sheet of Pepsin to get perfectly air dry—whereby it becomes coated with a white film and small crystals of chloride of sodium—and by immersing it then in pure water for a short time, the greater part of sodium chloride can be extracted, but

it has to be done very rapidly, as the pepsin swells up considerably and looses its tenacity. By operating in this manner I obtained a pepsin which dissolves in acidulated water to quite a clear colorless liquid, but as it still contains traces of salt, I preferred to call it *Purified Pepsin.*

I obtained a pepsin quite free of chloride of sodium—which by combustion did not leave any ashes—by swelling purified pepsin in water to a thick mucilaginous liquid and mixing it with alcohol of 95 per cent. A gelatinous almost transparent precipitate is formed, which is put on a cloth, washed with diluted alcohol, then pressed and dried. This preparation did not leave any ashes by combustion, but I was greatly disappointed in my expectation, when I found that the digestive strength of this pure pepsin was not as great as that of the purified pepsin, which still contains sodium chloride. No doubt the use of alcohol had impaired the digestive power of the pepsin to some extent.

Properties of Pepsin. The pepsin is, as already mentioned, very soluble in water, when recently precipitated, but when once air dry dissolves but slowly and only in very small quantities in water.

The dry purified pepsin, when put into water, swells up considorably, becomes perfectly white and, when vigorously shaken, disintegrates to small floccules, which swim in the liquid and remain suspended for a long time, while a very small quantity will dissolve.

The watery solution has an almost neutral reaction, is coagulated by boiling, and gives with alcohol a transparent, gelatinous precipitate.

With sulphate of copper it remains clear at first, but after several hours becomes turbid.

Bi-chloride of mercury gives immediately a white precipitate.

With tannin a very copious white precipitate is obtained.

Nitrate of lead forms a white precipitate.

The precipitate, formed by chloride of sodium, is very characteristic and at the same time very interesting. When a saturated solution of chloride of sodium is added to a clear solution of pepsin, not too concentrated, at first a jelly-like transparent coagulation is formed, which disappears upon stirring, and the liquid acquires a slightly opalescent appearance; after a short time it becomes more turbid and small flakes are noticed floating in it, which soon will form into small transparent globules and as such rise to the surface. When the quantity of pepsin in a liquid is very small, the opalescence and turbidity

is hardly noticed, but after some time the small globules will appear on the surface.

The watery solution of pepsin decomposes readily; after a few days small flakes separate from the clear solution, which increase in number by longer standing, and on the fourth day already it emits a foul disagreeable odor.

The watery solution of pepsin shows very little action on coagulated albumen; a certain quantity of albumen, which by a watery solution was hardly acted upon in twenty-four hours, was readily dissolved, after addition of a few drops of hydrochloric acid. A watery extraction of the mucous membrane was also experimented with, with the same result; before the addition of hydrochloric acid it did not dissolve albumen; after acidulating it the albumen dissolved easily.

Properties of Acidulated Pepsin. An acidulated solution of pepsin was made of such strength, that one fluid-ounce contained one grain of purified pepsin and two drops of hydrochloric acid, and experimented with.

By boiling, the clear liquid becomes turbid and, upon cooling, deposits flakes.

By addition of alcohol it remains clear at first, but upon standing, flakes of pepsin separate from it.

Strong hydrochloric acid produces slight turbidity, which disappears by addition of more acid or by dilution with water.

Chloride of sodium gives the characteristic precipitate.

Bi-chloride of mercury produces opalescence.

Tannin forms a heavy precipitate, soluble in hydrochloric acid.

Gallic acid shows no action.

Carbonate and bi-carbonate of soda produce a precipitate soluble in excess.

Modified Pepsin.—A solution of carbonate of soda carefully added to a solution of pepsin produces a precipitate which, upon being separated from the liquid, will prove to be pepsin; but a little more of carbonate of soda will redissolve it again, and the liquid no longer contains pepsin; that is, the pepsin is destroyed or modified.

This circumstance caused me to say in my essay (Amer. Journ. of Ph. 1871, page 6,) "*dry pepsin, precipitated with alcohol from its solution, did not act at all on albumen,*" which remark I herewith revoke as erroneous. The fact was that, intending to make pure pepsin and not getting a precipitate by alcohol in the sour solution, I added car-

bonate of soda to neutralize the acid, and then obtained by alcohol a precipitate which I believed to be pure pepsin; at that time I had not studied the change which carbonate of soda produces in pepsin.

When I say above the pepsin is destroyed I mean its action on fresh coagulated albumen. A pepsin solution, made entirely neutral, or rather a little alkaline by addition of carbonate of soda, which afterwards is acidulated again with hydrochloric acid, has lost its power to dissolve fresh coagulated albumen.

The alkaline solution assumes a foul odor after a short time; it does not act on fresh coagulated albumen, except when putrification sets in, and then the more putrid the solution becomes, the more it seems to act on albumen; at the same time the most natural odor of healthy human fæces will show itself.

But, on the other hand, the alkaline solution, by itself as well as when acidulated, dissolves *partly digested* albumen.

Coagulated albumen, put into pepsin solution until half gone, then taken out on a cloth and washed and put into an alkaline pepsin solution, will dissolve; it will likewise dissolve in an alkaline solution which has been again acidulated by the addition of hydrochloric acid. But these solutions have a different appearance from a solution by pepsin; they are not as clear and thin a liquid as the latter.

An alkaline (modified) pepsin solution does not get precipitated by chloride of sodium, but by addition of hydrochloric acid immediately a copious gelatinous precipitate will be formed.

Digestive power of Pepsin.—In my former experiments the strength of pepsin was ascertained by allowing its solution at a certain temperature to act upon a convenient quantity of coagulated albumen for a given time, and determining the quantity dissolved by weighing that undissolved; the albumen by this method was only partially dissolved. In my recent experiments I determined the strength by ascertaining the amount of albumen that would be fully dissolved in a certain time and at a given temperature. I had found that the solvent power of pepsin is not inverse proportional to the time; for if a pepsin dissolves X albumen in S time, $2a$ pepsin will not dissolve X albumen in $\frac{S}{2}$ time, as might be supposed, but require longer time. The last portion of coagulated albumen to be dissolved in an experiment requires much longer time in proportion, even when pepsin is in excess.

Having used heretofore, in my experiments with pepsin, 10 drops

of hydrochloric acid to the fluidounce of water, I wished to determine whether or not a smaller quantity of acid would answer the same purpose. It was of importance to ascertain if by the preparation of *liquid pepsin* a smaller quantity of acid would produce the same results, as some complaints were made of the acidity of that preparation as first prepared.

Of four experiments, in which a certain quantity of pepsin was dissolved in 1 ounce of water with respectively 4, 6, 8 and 10 drops of hydrochloric acid of 1·17 spec. grav., the same amount of coagulated albumen was dissolved in the shortest time where 6 drops, then where 8 drops and, thirdly, where 10 drops of acid were employed, while the experiment containing 4 drops of acid had, after 6 hours, a considerable quantity of albumen not dissolved. I, therefore, made all my subsequent experiments with a solution containing 6 drops of hydrochloric acid to the fluidounce of water, at a temperature of 100 to 105° F., and each vial was shaken about every 10 minutes.

One grain of purified pepsin in 4 oz. of acidulated water was found to dissolve 400 grs. of coagulated albumen in 18 hours at 75° F.

One grain of purified pepsin in 4 oz. of acidulated water dissolves 500 grs. coagulated albumen at a temperature of 105° F., in 6 hours.

Ten (10) grains of saccharated pepsin dissolve 120 grs. of coagulated albumen in 4 to 6 hours at 100° F.

Although I did not succeed to prepare a pepsin like Wasman's, of which 1 part was capable of dissolving 60,000 parts of coagulated albumen I found that the digestive power of pepsin was almost inexhaustible.

With one-half grain of purified pepsin in 2 oz. of acidulated water I dissolved 250 grains of coag. alb.; to the solution was added another oz. of acidulated water and 250 grs. of albumen; when it was again dissolved I added in these fractional proportions of acidulated water and albumen, until finally the one-half grain had dissolved 1500 grains of coagulated albumen. That it would have dissolved still more I proved in an experiment, mentioned hereafter.

Pepton solution.—When the albumen, which by the digestive process is converted into albuminose or pepton, is perfectly dissolved, the resulting pepton solution is a very limpid, thin, slightly yellowish-colored liquid, which, when filtered, has an opalescent appearance.

By addition of alcohol it remains at first clear, but forms, after 24 hours, a gelatinous precipitate.

Pepton precipitate.—An equal volume of saturated salt solution added to the pepton solution produces a copious, perfectly white precipitate, which, upon being collected on a filter, drained, pressed and dried, yields a hard white substance containing pepsin, peptons, chloride of sodium and a little acid. Put into water it becomes translucent, like horn, and dissolves after some time.

Its solution has an acid reaction; is not coagulated by heat; hydrochloric acid produces a heavy precipitate which, by dilution with water or by addition of more acid, will redissolve; with alcohol it becomes opalescent and forms after some time a precipitate.

Bichloride of mercury gives a heavy white precipitate.

Coagulated albumen put into the watery solution is hardly acted upon, but when acidulated with hydrochloric acid it is dissolved.

Digestive power of the Pepton precipitate.—The digestive power of the precipitate, obtained by addition of sodium chloride to the pepton solution is remarkable. In many cases a solution of one grain of the precipitate in one oz. of acidulated water dissolved 100 grains of coagulated albumen.

With 20 grains of saccharated pepsin in 2 oz. of acidulated water I dissolved 240 grs. of coagulated albumen; the precipitate obtained from this solution by chloride of sodium weighed, when dry, 12 grains, of which 1 grain dissolved 100 grs. of coagulated albumen; from this last solution again, by chloride of sodium, 10 grains of precipitate were obtained, of which 1 grain dissolved between 20 and 30 grs. of coagulated albumen. In this way the 20 grs. of saccharated pepsin, for which I only claim the power to dissolve 240 grs. of albumen in 6 hours, dissolved at the rate of between 4000 and 5000 grains.

The solution of 1500 grs. of albumen, obtained by fractional addition of albumen and acidulated water to an acidulated solution of half a grain of purified pepsin, mentioned above, furnished with chloride of sodium a precipitate, which also had considerable digestive power.

Relation of Chloride of Sodium to the digestive power of Pepsin.—By its preparation the commercial, saccharated pepsin contains always a small quantity of chloride of sodium; in my experiment, to obtain a pure pepsin free of sodium chloride, I succeeded by using alcohol, but the resulting product had less digestive power than purified pepsin, which still contains salt. It was, therefore, in-

teresting to determine if chloride of sodium would aid the action of pepsin on albumen and accelerate its solution.

A very small quantity of salt, a quantity that does not exceed much that of the purified pepsin, does not interfere with, on the contrary benefits the pepsin in its action; but a larger quantity, although very small in itself, retards the solvent power.

While half a grain of pure pepsin in 2 oz. of acidulated water dissolved 200 grains of coag. alb. perfectly, a great deal of albumen was left undissolved in the same time when 5 grs. of salt were added to it, while by 10 grains of salt a portion of the albumen was not dissolved after three days.

Stability of Pepsin.—As watery solutions of pepsin decompose very soon, particularly in warm weather, it was of interest to determine the stability of acidulated solutions; accordingly solutions containing one grain of purified pepsin to the fluidounce of water, and respectively 2, 4, 6, 8 and 10 drops of hydrochloric acid were set aside, a portion of each in well-corked vials and another portion in vials only tied up with paper. The solutions containing 2 drops of acid became mouldy after the first and second week, while in the vials, with 4 drops of acid, I noticed mould after five weeks. The other solutions kept entirely clear, and when examined, after 6 months, they did not have any bad odor, but had lost their digestive power almost entirely; albumen, put into several of the solutions, was hardly acted upon, and chloride of sodium did not produce the characteristic precipitate.

To 20 grs. of purified pepsin, swelled in 2 ounces of water, were added 10 drops of hydrochloric acid, which dissolved the pepsin fully and formed a liquid of a slight yellowish color, and the consistence of the officinal mucilage of gum arabic. Put aside in a beaker-glass, tied up with blotting paper, it evaporated slowly, and was, after 6 weeks, dried out to a transparent gum which felt sticky to the touch. Examined after several months, it dissolved readily in water, forming a clear solution of sour reaction and taste, which had no bad odor, but acidulated and diluted to the strength usually employed in my experiments, did not act on coagulated albumen, and chloride of sodium gave no precipitate. The pepsin was therefore totally destroyed or at least made inactive.

Anxious to learn whether *liquid pepsin*, which had been put aside eight months before for experiments' sake, had retained its digestive

properties, I examined this and found that, although slower in its action, it still dissolved albumen, and was also precipitated by chloride of sodium.

It seems, therefore, that the glycerin in the preparation of liquid pepsin prevented the pepsin from decomposition.

In the spring I had set aside moist precipitate (by chloride of sodium) of pepsin of the consistence ready for the press; when examined after six months it had a sweet odor, was pressed, dried, and its digestive power ascertained, whereby it proved to have the same digestive strength as when fresh prepared.

Several times the (chloride of sodium) precipitate, while draining on the cloth, was entirely frozen through, but proved, after thawing not inferior in quality.

The purified as well as the saccharated pepsin, examined twelve months after preparation, proved to be entirely as good as when recently prepared; they had lost nothing of their strength, and dissolved albumen in the same time and in the same quantities as when quite fresh. The only difference is, that with age the dry pepsin dissolves somewhat slower in acidulated water.

Action of Pepsin on Milk.—As the opinion is still prevalent, even amongst physicians, that only calf rennet has the property of separating the casein from the milk, or, in other words, to coagulate milk, it was interesting to me to try the action of pepsin on milk.

Five grains of saccharated pepsin, swelled in a little water and then stirred into one pint of milk, coagulated the milk in 30 minutes.

Of a solution of two grains of purified pepsin, two drops of hydrochloric acid and one fluid-ounce of water, it took five drops to coagulate four ounces of milk in about 20 to 30 minutes; while 10 drops of dilute muriatic acid (20 drops to one oz. of water) did not curdle four oz. of milk in four hours.

Averaging 400 drops in a fluid-ounce of the pepsin solution, it took one-fortieth ($\frac{1}{40}$) part of one grain to coagulate four ounces of milk or one grain to five quarts; according to this test, one part of pepsin will coagulate about 80,000 (eighty thousand) parts of milk.

The success of these experiments depends a great deal on the temperature; the best way is to add the pepsin to the milk when cold, and then heat it slowly; when kept cold it takes much longer time to coagulate the milk. Also when the milk is heated first, say to

100° F., before the pepsin is added, it takes three to four times as much pepsin to effect coagulation.

Alcohol incompatible with Pepsin.—In my former articles written about pepsin, I have mentioned the incompatibility of pepsin and alcohol, and have spoken of the impropriety of dispensing pepsin in the form of wine or elixir. Having now a purer pepsin at my disposal than before, I repeated the experiments with entirely the same result.

Seven vials of solution of pepsin, each containing the same amount of pepsin and hydrochloric acid, were made with that difference, that, while vial No. 1 contained only one fluid-ounce of water, No. 2 contained one-half drachm of alcohol and seven and a half drachms of water; No. 3, one drachm of alcohol and seven drachms of water; and so each following vial one-half drachm of alcohol more than the preceding one, so that in vial No. 7 there were five drachms of water and three drachms of alcohol. The same amount of coagulated albumen was given into each vial, which were exposed then to a temperature of 100° F. After six hours in vial No. 1 all the albumen was dissolved; in No. 2 some albumen was left undissolved, No. 3 contained more, and in No. 4 over half of the albumen was not dissolved, while in five, six and seven the albumen was a little changed in appearance, but the bulk not diminished. The contents of those vials in which the albumen was not much acted upon, emitted that peculiar sour odor which characterizes discharges of an overloaded stomach (with beer or wine) by vomiting.

A solution of half a grain of purified pepsin in half a fluid-ounce of water, with three drops of hydrochloric acid, was mixed with one fluid-ounce of sherry wine, after 24 hours filtered, and then, with the addition of 150 grs. of coag. albumen, exposed to a temperature of 105° F. After six hours—during which time the half grain of purified pepsin in acidulated watery solution would have dissolved 250 grs. of coag. albumen—of the 150 grs. at least two-thirds yet remained. I added now six drops more of hydrochloric acid to bring the liquid to my standard acidity, but even at the end of 24 hours a large quantity of the albumen was undissolved.

Having never made pepsin by any other method, I am not able nor justified to judge between the different products; but that my process excels by simplicity, nobody will question. That a complicated process,

by which strong bodies, as mercury, lead and sulphuretted hydrogen, are alternately used, to prepare a substance, should or might impair the quality of the product, is very probable. That nevertheless pepsin, prepared by such a method, has the digestive power, speaks for the almost inexhaustible strength of it.

Another point of importance in my preparation I would call attention to, is that no artificial heat at all is used, neither by extracting the stomachs nor by drying the pepsin, and in my whole process no evaporation is necessary. To evaporate the solution of a substance, for which a few degrees difference in heat decide between life and death, is a very delicate operation, which is easily carried out for experimental purposes, but on a larger scale is almost impossible.

My pepsin differs from the pepsin described in Gmelin's Handbook, principally by the latter being easily soluble in water, while mine, although very soluble in the moist state, looses its solubility almost entirely by exsiccation.

That pepsin precipitate, which, combined with pepton, I obtained from the pepton solution, is more identical to the pepsin described in Gmelin's Handbook (Volume 8, Zoochemie), as it is easily soluble after having become dry, is completely precipitated by alcohol, shows a more acid reaction and its clear solution becomes more turbid by addition of hydrochloric acid than the pure pepsin.

To bring the pepsin into a finely divided state, I preferred the use of milk sugar to that of starch, the substance generally used for this purpose, particularly by the French manufacturers; reasoning that sugar with its antiseptic properties will contribute to the stability of it, while starch, particularly in the damp state, is very apt to get mouldy, and will then, as a necessary consequence, cause the decomposition of the pepsin.

When first making the commercial pepsin, which I called *saccharated pepsin*, I aimed to make it of such strength that one grain of the saccharated should correspond in its digestive power to one teaspoonful of the *liquid pepsin* (Amer. Journal of Phar., January, 1871); that it can be made of much greater power I have plainly shown by the before mentioned results.

As for the precise strength that will be best suited for the human stomach, that will have to be determined by physiologists. According to Schroeder, the normal gastric juice of man dissolves 24 per cent. of coagulated albumen; five grains of saccharated pepsin, which

in acidulated solution dissolve 60 grs. of coagulated albumen in four to six hours would correspond to half an ounce of human gastric juice. No doubt the beneficial effect of pepsin has its limits. Several grains of the purified pepsin, of which one grain dissolves 500 grs. of albumen in six hours, might do more harm in the human stomach than good, and might even do positive injury.

But, in this essay, I have given only facts based on chemical experiments; to make use of these facts for therapeutical and physiological purposes, I leave to physicians.

Louisville, Ky., January, 1872.

IMPROVED PROCESS FOR PREPARING EMULSIONS OF LIGHTER VOLATILE OILS, ETC.

By J. Winchell Forbes.

Of all the processes incident to extemporaneous pharmacy there is, perhaps, no one so vexatious and tiresome as the preparation of an emulsion, especially one containing chloroform, ether, or one of the lighter volatile oils, and any improvement upon the usual "elbow grease" method will, I am confident, meet with a hearty welcome from every practical apothecary.

The advent of a recipe for a turpentine emulsion at the very last moment of a hard day's work, set the wits of the writer at work to devise some practical method of avoiding the labor and expenditure of time incident to such prescriptions, and the following process is the result:

In order to illustrate, let us imagine the following recipe handed to an apothecary for preparation.

℞. Ol Terebinth.
Mucil. Acaciæ *aa* ℥j.
M.
ft. Emulsio S.A.

"Secundum artem." Very good, and what is the law of the art?

In the articles upon Mixtures in the U. S. Dispensatory, it is directed that when gum acacia is specified as the intermedium of an emulsion, it shall be brought "*previously*" into the form of U. S. P. Mucilage.

At the risk of being considered presumptuous, I take the liberty of flatly contradicting this direction—wilfully disregarding the "previously" and proceeding as follows:

First. Pour the turpentine into a two-ounce vial, and shaking so as to coat the inside of the vial with a film of turpentine; this is to prevent the action of the moisture usually present.

Secondly. I add ℈j powdered acacia, and mix thoroughly with the oil.

Lastly. Half a fluid-ounce of water is added, and the whole is well shaken. A perfect emulsion is the result, requiring less time for its preparation than to read the foregoing directions. The bottle may then be filled up with mucilage, or, according to my experience, a better product is obtained with water simply.

The deviation from the letter of the law in regard to the gum strength of the emulsion needs no apology to the practical pharmacist, as the sole object in view is to emulse the oil, and it will be found that ten grains to the fluid-ounce of emulsion will afford a product superior in all respects (especially in fluidity) to one containing more gum, and more nearly approaching the peculiar characteristics of that most perfect of all emulsions—cow's milk.

An emulsion of turpentine prepared in this manner and allowed to stand some time, shows not the least separation of its oil, but floating on the surface of the water is a stratum of a true "cream," which, like its prototype, requires but slight agitation to mix thoroughly with its substratum.

I have for some time past kept an emulsion of oil of turpentine prepared as above, containing half its volume of oil, for use in dispensing, and as the oil is perfectly emulsed, its incorporation in any desired amount of mixture or vehicle requires no more labor or skill than in the case of a tincture or syrup. I find, also, that the emulsion rather improves by standing, the "cream" becoming more homogeneous.

It is often desirable to administer this oil in quite large doses, and it will be found that a mixture of one part of an emulsion of the above strength, with three parts of syr. wild cherry will give a preparation that is rather pleasant than otherwise, both as regards taste and odor.

Actual experiment has demonstrated that this method is applicable to all liquids that possess no solvent power as regards gum acacia, and that possess a reasonable degree of mobility. In accordance with this fact it will be found that ether and chloroform, when treated in this manner, will yield perfect emulsions, and, as the operation is conducted in a close vessel, the loss sustained in the usual process is not incurred.

The principle upon which this process is based is very simple. In the usual mortar process the cohesiveness of the intermedium has to be overcome, it being directly opposed to the union desired, whereas, in the new, the same condition of the gum does not occur until *after* the union, being then opposed to their *separation*.

San Francisco, Cal.

ON FLUID EXTRACT OF VANILLA.

By J. B. Moore.

This preparation, though usually called a fluid extract, is in reality only a tincture in the common acceptation of the term. The rich and delightfully aromatic qualities of Vanilla has given to its fluid extract an importance and popularity unsurpassed by any other flavoring substance. While it is indispensable to the housekeeper and confectioner, it is also of importance to the pharmacist and perfumer. Alone or associated with other flavoring substances, it is often employed by the pharmacist to conceal or modify the taste and odor of many unpleasant remedies.

In making this fluid extract it is absolutely essential to the success of the operation that the vanilla be reduced to a fine state of division, and it is in performing this operation that the operator encounters the greatest difficulty. The peculiarly tough texture of the shell not only renders vanilla very difficult to powder, but it also offers an obstinate resistance to the action of solvents, and unless it is reduced to a sufficiently fine powder to enable the menstruum to exert its full solvent power it cannot be entirely exhausted.

I have tried during the last few years a variety of methods of making this fluid extract, and with variable success, until I adopted the following plan, which, having been tested by repeated trials with uniform success, I deem of sufficient importance to offer to the readers of this *Journal*.

℞. Vanilla,
Sugar, crushed loaf, *aa* ℥ viij, troy.
Alcohol,
Water, each, sufficient quantity.

Slit the pods from end to end with a knife; then take them in small bundles, held tightly between the fingers, and cut them transversely into very small pieces. Of these, beat small portions at a time, in an

iron mortar, with a little of the sugar until reduced to a damp powder, which must be rubbed with the hand through a No. 20 sieve; any coarse particles which will not pass through the sieve must be returned to the mortar, and, with fresh portions of vanilla and sugar, again treated as before. This process is to be continued until the whole of the vanilla, with the sugar, is reduced to a No. 20 powder. This is then to be mixed with five pints of a menstruum, consisting of three parts of alcohol and one part of water, and the mixture introduced into a stone jug of the capacity of one gallon, which must be tightly corked. The jug is then to be placed in a water-bath, resting upon folds of paper, and the mixture digested for two hours at a temperature of from 160° to 170°. The neck and shoulders of the jug must be kept cool, to prevent the undue expansion of vapor during the digestion. This can easily be done by wrapping around the neck and shoulders of the jug an old towel or other cloth kept saturated by having *cold* water squeezed upon it from a sponge every fifteen or twenty minutes. If the jug is of the capacity directed, this will be found to be often enough to apply the water. The jug should also be removed from the bath after each application of the water, and its contents well shaken. In doing this it will be well to keep the hand upon the cork to prevent its expulsion, and perhaps consequent loss of material. When the digestion has been completed, and the mixture has cooled, it is to be expressed through muslin. Pack the residue, previously rubbed with the hands to a uniform condition, firmly in a glass funnel, prepared for percolation, and gradually pour upon it first the expressed liquid, and when this has all disappeared from the surface, continue the percolation with a mixture of three parts of alcohol and one part of water until eight pints of percolate are obtained.

When the pods have been well preserved and are very moist, there may sometimes be required a little more sugar than I have directed in the formula to make them powder easily. When this is the case, the necessary additional quantity of sugar may be added, which will make no important difference beyond rendering the preparation a little sweeter, and this is not at all objectionable. But I have generally found the quantity of sugar ordered to be sufficient.

Many substances, such as sand, glass, &c., have been suggested as auxiliaries in the process of powdering vanilla, and either of these may be employed in the above process, instead of sugar, if preferred

by the operator, and the sugar can be mixed with the powder afterwards, and dissolved in the menstruum before digestion. But I have always had success when using the sugar, and prefer it to any other substance.

A thermometer should be kept in the water-bath during the digestion for the purpose of regulating the temperature, which should not be allowed to exceed 170°.

The elevated temperature at which the digestion is conducted very greatly contributes to the ready solution of the active constituents of the vanilla; it softens and expands the tough particles of shell, and admits of the free access of the menstruum, (the solvent power of which is also greatly heightened by the heat,) to all its parts. The digestion being performed in a close vessel, there is consequently no loss of *aroma* in the process.

The above is an expeditious and at the same time efficient method of making this preparation, and if the process is managed with care, it will thoroughly exhaust the vanilla. In fact, this is almost accomplished by the digestion itself, as is shown by the circumstance that the dregs after they are expressed are almost tasteless.

In the absence of any recognized standard strength for the fluid extract of vanilla, I have, in the above formula, adopted that which is usually employed, namely, one troy ounce of vanilla to one pint of menstruum. In preparing it for general use, these proportions are perhaps the best that can be made.

The alcoholic strength of the menstruum to be employed in making the fluid extract of vanilla is also not a matter of indifference, as upon this depends the color as well as the quality of the finished product. The one I have chosen, consisting of three parts of alcohol and one part of water, seems to answer the purpose most admirably. Diluted alcohol is not so good a solvent for the virtues of vanilla, and it extracts too much coloring matter, rendering the fluid extract too dark, while alcohol alone affords a preparation objectionably light in color, and also makes its manufacture rather more expensive.

Philadelphia, January, 1872.

LINIMENTUM SAPONIS.

By J. A. Graeflе.

This preparation can be made in a few minutes by the following modification of the officinal process:

Take of Dry White Castile Soap (finely grated),	℥iv.
Camphor,	℥ij.
Oil of Rosemary,	fl℥ss.
Water,	fl℥vj.
Alcohol,	fl℥xxx.

Put the soap in a half-gallon bottle, pour on a pint of alcohol, shake well, add the water and shake again till the soap is dissolved.

Dissolve the camphor and oil in the remaining alcohol, mix the two solutions and filter.

From five to ten minutes is all that is necessary for the solution of the soap, and the resulting liniment, when finished, is beautifully clear.

Baltimore, Jan., 1872.

PHARMACEUTICAL NOTES.

By J. Dondé.

The frequent use which is made of gum water, and the inconveniences which its preparation for each prescription presents, induced me to prepare the following:

Gum Syrup.

Gum Arabic, in coarse powder,	2 pounds,
Rain Water,	2½ pounds,
Simple Syrup,	6 fluid-pounds.

Macerate the gum in the water, shaking it occasionally, for 6 or 8 hours, until completely dissolved; then strain. This gives 3½ fluid-pounds of mucilage. Concentrate the syrup to 35° Bmé., remove from the fire, let it cool to 60 or 70° C., and add the mucilage. It gives 8 fluid-pounds of syrup, which contains one-fourth part of gum.* Mixing 1½ fluidounces of this syrup with 6½ ounces of water, a perfectly clear solution is obtained which contains 3 drachms of gum.

I have prepared this syrup since the year 1862.

The extract of rhatany is prescribed often in sweetened water or with gum; but its solution is slow and incomplete, often remaining turbid. To obviate these inconveniences I have prepared a syrup after the following formula:

* This syrup contains twice the amount of gum Arabic of the syrupus acaciæ, U. S.—Ed. Amer. Journ. Pharm.

Syrup of Rhatany.

Dry Extract of Rhatany,	3 ounces.
Rain Water,	5 ounces.
Simple Syrup,	15 fluidounces.

Pulverize the extract, mix it with the water and 5 ounces of the syrup in a capsule, which place in a steam-bath, occasionally stirring with a glass rod until the extract is dissolved; add the rest of the syrup, and evaporate to 18 fluidounces. Each fluid-drachm contains 10 grains of extract.*

When sulphuric lemonade is prescribed with extract of rhatany it is necessary to add a little gum syrup to prevent the precipitation of the extract.

Syrup of Valerian, to replace infusions.

Hydro-alcoholic Ext. of Valerian Root,	2 ounces,
Rain Water,	2 ounces,
Simple Syrup,	4 fluidounces.

Concentrate the syrup to 32° Bmé.; when cooled to 40 or 50° C., add the extract dissolved in the water. When cold it has 36° Bmé. Each fluidounce contains 18 grains of extract, equivalent to 1 drachm of the root. One fluidounce of this syrup with 8 of water may ad-advantageously replace the infusion.†

Would it not be convenient to employ syrups for preparing drinks which are now made by infusion or decoction? There would result the advantage of having the medicine whenever needed, and always with the same proportion of medicinal principles.

The fluid extracts would be very useful in the preparation of these syrups.

Fluid Extract of Opium.

In most fluid extracts alcohol is used as the vehicle of extraction and preservation; but as opium, from its nature, completely excludes this liquid, I have recurred to glycerin for the preservation of this fluid extract.

Treat the opium twice with cold water, according to the proceeding described by Mr. Soubeiran in his treatise on Pharmacy. Filter and

* The amount of extract of rhatany contained in this syrup is about three times larger than that of the syrupus krameriæ, U. S.—Ed. Am. Journ. Pharm.

† Only one-half the strength—not to speak of the quality—of the infusum valerianæ, U. S.—Ed. Am. Jour. Pharm.

evaporate the liquids to the consistency of extract; redissolve this in 16 times its weight of cold water; filter and add 7½ ounces by weight of glycerin to each pound of opium employed, and evaporate to 15 ounces.

I have had this preparation on hand two years and a half, in good condition. Two pounds of good opium have always given me 15 oz. of extract.

The *soda ley* for making santonate of soda (see Amer. Jour. Pharm. 1871, p. 451) should have a specific gravity corresponding with 12° B.

Merida, Yucatan, January 3, 1872.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Sinalbin. $C_{30}\,H_{44}\,N_2\,S_2\,O_{16}$, according to H. Will, is a glucoside, extracted by alcohol from yellow mustard. An aqueous infusion of mustard decomposes this body into sulfocyanacrylin ($C_8\,H_7\,NSO$), acid sulphate of sinapirin ($C_{16}\,H_{19}\,NSO_9$) and sugar ($C_6\,H_{12}\,O_9$). Ether dissolves only sulfocyanacrylin, which is an acrid oil insoluble in water and not volatile. Sinalbin yields with nitrate of silver a white precipitate, from which sulphuretted hydrogen liberates cyanacrylin $C_8\,H_7\,NO$, soluble in water, alcohol and ether, and fusible at 69° C. Boiled with potassa, ammonia is evolved, and an acid $C_8\,H_8\,O_3$ which fuses at 136° C.

The author does not state the relation of these bodies to the compounds which have been thus far assumed to be derived from yellow mustard.—*Pharm. Zeitschr. f. Russl.*, 1871, 595, *from Zeitschr. f. Chem.* 1871, *p.* 89.

Antidote to Carbolic Acid. Dr. Theodore Husemann opposes the use of fixed oils, glycerin and similar demulcents in cases of poisoning by carbolic; but recommends, based upon experiments with rabbits made by himself and Ummethun, the saccharate of lime, the alkaline earth combining with the carbolic acid to form a non-poisonous salt. Lime water is less adapted to this purpose, owing to the sparing solubility of lime in water, and the large quantity of lime water required for neutralizing the poison. Precipitated carbonate of lime does not combine with carbolic acid, but may be employed in case the saccharate of lime should not be procurable at once; the carbonate

appears to act merely mechanically by absorbing the poison, and thus delaying its ill effects; sufficient time is thereby afforded to prepare the saccharate.—*Ibid. p.* 609–622.

The root of Reseda odorata (mignonette), which has an odor resembling horse-radish, was found by Dr. A. Vollrath, to yield, by distillation, a volatile oil, consisting mainly of sulphocyanide of allyl. —*Archiv d. Pharm.*, 1871, *Nov.*, *p.* 156.

Tinctura Rhei aquosa. E. Fischer, of Dresden, furnishes the following formula, yielding an unexceptionable stable preparation: 100 grm. sliced rhubarb, 10 grm. each of powdered borax and carbonate of potassa, are infused with 900 grm. boiling water for 15 minutes; 100 gram. alcohol are added, and the maceration continued for one hour; then strain, express, add 150 grm. cinnamon water and filter; the filtrate should weigh 1000 grm.—*Ibid.*, *p.* 158.

Senecio Vernalis, Waldst. et Kit. was unknown to Linnæus, and first mentioned by Prof. Gilibert, of Grodno, in 1781. This plant seems to be indigenous to Asia, probably Siberia, and is continually traveling westward. After long continued Eastern winds, it was first observed in Siberia, in 1822, and is now found throughout Eastern Germany as far west as Mecklenburg. It is a troublesome weed, attaining a height of 30 inches, and flowering from April till June, and later from September till November, multiplying very rapidly.—*Ibid.*, 169.

Syrup of Tolu. Emil Van den Heuvel objects to the removal of the resin in the preparation of this syrup, and suggests the following formula and manipulation: 40 grm. powdered gum arabic are triturated with a little simple syrup to form a thick mucilage, 40 grm. tincture of tolu are then incorporated with it, and finally the remainder of the simple syrup (altogether 920 grm.) gradually added. The gum not only emulsionizes the resin, but it likewise restores the proper consistency of the syrup, which is rendered too thin by the addition of tincture alone.—*Bull. de la Soc. roy. de Ph. de Brux*,. 1871, 392.

The purgative effect of sulphovinate of soda. From his observations in hospitals, Dr. Rabuteau arrives at the following conclusions:

1. This salt purges in relatively small doses; 25 grammes are always sufficient; the dose for children is 10 grm., which sometimes answers for adults.

2. 20 grammes dissolved in three glasses of water, generally produce four or five stools, and five to eight from 25 grammes; the effect usually commences in about one hour..

3. This salt is the mildest of the saline purgatives; it causes neither exhaustion nor pain; on the contrary, the colic existing in certain forms of diarrhœa rapidly disappears.

4. It produces no abnormal intesinal contraction, acts purely as a dialytic purgative, and may be given even during menstruation and in pregnancy.

5. Owing to its slight taste, it is readily taken without repugnance.

6. It is preferable to citrate of magnesia, presenting all the advantages and none of the inconveniences of the latter. Dissolved in Seltzer water it is more agreeable, and cannot determine the formation of any calculus. The long-continued use of magnesia salts is dangerous; they are not prescribed by judicious physicians to old persons, particularly if suffering from catarrh of the bladder, owing to the tendency of inducing the formation of calculi of ammonio-phosphate of magnesia.—*Ibid.*, *p.* 401, *from Union Pharm.*

Analysis of the flowers of Anthemis nobilis. Mr. Camboulises exhausts the dry flowers with ether free from alcohol; this tincture is evaporated to an extract. the mass taken up by boiling distilled water, filtered while hot, and, after twenty-four hours repose, again filtered. Evaporated to dryness, the residue exhausted by ether, and this liquid evaporated spontaneously, prismatic crystals of an organic acid are obtained, which appear to be identical with the anthemic acid discovered by Pattone in the flowers of *Anthemis arvensis.** The alkaloid anthemidin, stated by Pattone to have been obtained from the latter flowers, could not be prepared from *Anthemis nobilis.*

These flowers, after having been exhausted by ether, were treated with 90 per cent. alcohol, and on evaporation yielded an extract consisting mainly of a yellowish matter, containing yellow globules of a fixed oil.

With Fehling's test the flowers indicated 23·498 per cent., by fermentation only 14·890 per cent. of glucose; its seems, therefore, that besides glucose, another body is present which reduces cupric oxide.

100 grm. of the (dry ?) flowers yielded 6 grm. ashes, of which 3·175

* Jour. de Pharm. et de Chim., 3 série, t. 35, p. 198.

grm. were soluble in water, and consisted of 0·8103 sulphate of potassa, 1·1629 chloride of potassium, 1·1907 carbonate of potassa, 0·0111 alkaline phosphate; the insoluble portion consisted mainly of phosphate of lime (1·6894), and of phosphate of magnesia, carbonate of lime and silica.—*Journ. de Pharm. et de Chim.*, 1871, *p.* 337—341.

Tanacetic Acid. By Frosini Merletta. The residue from distilling the tops of tansy is filtered, concentrated to the consistence of honey, then treated with chalk and animal charcoal, and finally evaporated; this residue stirred into water acidulated at first with hydrochloric, afterwards with acetic acid, colored crystals of tanacetic acid are obtained, which are washed with distilled water. It is insoluble in water, but soluble in alcohol and ether, and possesses an acrid and bitter taste. Its salts are crystallizable.

As a vermifuge it acts in the same doses as santonin.—*Ibid.*, 368.

Preparation of Crystallized Indigotin. C. Méhu uses hot carbolic acid, which deposits the indigotin, on cooling, in crystals. To avoid the solidification of the phenic acid, the author adds a little alcohol, or benzine, or camphor; one part of the latter added to 15 per cent. phenic acid, liquefies it the same as benzoic and glacial acetic acids. Operating with 500 grm. carbolic acid the author obtained 2 grm. pure crystallized indigotin. It is recommended to wash the indigo previously with water, dilute hydrochloric acid and several times with boiling alcohol. This indigotin will answer a good purpose in colorimetric assays.—*Ibid.*, 412.

Transformation of Cane-sugar into Glucose. Raoult enclosed a solution of one part of pure cane-sugar in 5 per cent. of water into glass tubes, removed the air by boiling and closed the tubes over the lamp. One tube, kept for five months in the dark, contained the cane-sugar unaltered; another tube, kept in the light, contained, after the same time, a transparent solution, free from microscopic vegetation; about one-half of its cane-sugar, however, had been transformed into glucose. —*Ibid.*, 415.

OIL OF WINTERGREEN.

By Dr. J. E. De Vry.

In reading the note on "Oil of *Andromeda Leschenaultii*" on page 285 of this Journal,* I supposed it would be of some interest to pub-

* See page 547 of our last volume.

lish some experiments on a similar subject which I made in 18[illegible]9 when I was in Java. The presence of large numbers of *Gaultheria punctata* and *Gaultheria leucocarpa* on the tops of many volcanoes of that island having attracted my attention, I collected the leaves of both of them on the extinct volcano Patoea, with the view of ascertaining the amount of essential oil to be extracted from them by distillation.

65 pounds of fresh leaves from *G. leucocarpa* yielded forty grams of oil, amounting to about 0·012 per cent.

59 pounds of fresh leaves from *G. punctata* yielded 340 grams of oil, amounting to about 1·15 per cent,

Both these oils are almost identical with the American wintergreen oil, as I found them to consist chiefly of methyl-salicylic acid. I brought them home, and presented them to the chemical collection of the Polytechnic School at Delft.

If wintergreen oil is really in great request by certain manufacturers, I suppose it would be made with profit in Java from *G. punctata.*

As Zwenger found quinic acid in the leaves of *Vaccinium Myrtillus*, I supposed that both the species of *Gaultheria* mentioned as belonging to the same natural family, might contain the same acid. Therefore, after distilling the oils, I examined the residue in the still, and found the expected quinic acid, as was proved by its deviation of the plane of polarization to the left and by the production of hydrochinon, if treated with maganese and sulphuric acid.—*Pharmaceutical Journal and Transactions, Dec.* 23, 1871.

THE CULTIVATION AND USE OF THE DANDELION IN INDIA.

By John R. Jackson, A.L.S.,

Curator of Museums, Royal Gardens, Kew.

The dandelion is perhaps one of the most cosmopolitan of medicinal plants, for besides being an actually recognized article in pharmacy, it is also largely collected and used by the peasantry in rural districts in liver complaints and in cases of dyspepsia. *Taraxacum officinale*, Wiggers (*Leontodon Taraxacum*, L.), is very widely distributed through Europe, Central Asia, North America and the arctic regions. Several varieties of the plant are known in this country, some of which have been dignified into species. The commonest variety is that mostly found on cultivated ground and known as *Tarax-*

acum Dens-leonis, Desf., which has bright green runcinate-pinnatifid leaves and the bracts of the involucre recurved. The plant has great powers of reproduction, both by its roots and by the pappus seeds, which are easily wafted by the winds to distances, where they readily germinate and establish themselves.

The plants grow abundantly throughout the Himalayas, where two or more distinct varieties are known; one is described as having large double flowers, quite the size of a rupee, and another with small single flowers, rather larger than a sixpence. The larger-flowered form is said to possess medicinal properties in by far the greatest degree. The plants are likewise cultivated in various parts of India, and the roots are collected between the months of September and February. To cultivate the plants properly, the following plan is recommended:—The seeds should be sown in beds, and the young plants, when sufficiently grown, should be planted out on ridges at a distance of nine inches from each other. This system of planting is the best suited for the production of large roots, which is the principal end to be obtained, and, to further ensure this result, the flowers should be gathered as they open. The roots, after they are taken up, are washed clean and wiped dry.

Taraxacum roots are used in a variety of ways in India; one useful form is that of a paste, which is made by pounding the fresh roots, putting the mass into tins or jars and gently baking or heating in an oven; when cool, the paste is ready for use and can be kept for a long time. To prepare dandelion-coffee, the roots are washed, dried in the sun and cut up into small pieces, after which they are roasted in a similar manner to true coffee; they are then ground, and to every nine ounces of coffee one ounce of pounded dandelion-root may be added; these proportions make an excellent and useful beverage. The use of this coffee in India has been much recommended.

Lieutenant Pegson, in a communication to the Agri-horticultural Society of India, advocating the more general cultivation and use of the dandelion, says, "Medical men admit the value of this preparation, and I know several gentlemen in India who are, by their own admission, kept alive by the daily use of *Taraxacum*-coffee. It is fairly entitled to be called a specific for the cure of torpid liver, a complaint from which the majority of Europeans suffer; the fact being made known when they proceed to a cool or hill climate and shiver and shake with cold while the thermometer is at 62° F. only. The

sallow complexion of such men, women and children, their languid movements and their enjoyment of heat, all alike proclaim that they are suffering from sluggish action of the liver. The conserve of *Taraxacum* may be made into syrup for use. Horses and valuable dogs, sheep and poultry, all suffer in India from disease of the liver. A bolus of *Taraxacum* conserve to a horse, and a pill thereof to a fowl, would be most beneficial and act as a curative agent. Rabbits also suffer greatly from liver disease, but if they were supplied with a few (two to four) green *Taraxacum* leaves twice or thrice a week, the mortality resulting from this (hitherto) incurable disease would disappear, and rabbits could then be extensively raised for the market."—*Pharm. Journ. and Trans., Dec.* 30, 1871.

TANNIN AND GLYCERIN.

By R. Rother.

Tannic acid is frequently prescribed in concentrated solution with glycerin; but tannin, commercially obtained, possesses various impurities which either remain as insoluble turbidity or discolor the solution. Firstly, a green resinous coloring matter, insoluble in water but soluble in strong alcohol and glycerin, invariably occurs. This contamination results from the solvent action of the ether in the original process of extracting the tannin. Secondly, metallic chips of copper, iron, &c., from the vessels in which the tannin was dried are never absent.

A concentrated solution of tannin is nearly indispensable among the requisites of the prescription department. An aqueous solution, however concentrated it may be, will spoil. An alcoholic solution is often objectionable, but an aqueous solution, containing glycerin, can be utilized on most all occasions.

This solution is best adjusted by weight; it is perfectly stable, clear and transparent, and contains one troy ounce of tannic acid in two troy ounces of the solution, that is half tannin by weight. The solvent is the other half, or 1·4 each by weight glycerin and water. More than this proportion of glycerin cannot be used to advantage, as the liquid becomes too thick to pour conveniently. This solution cannot be prepared, however, by directly combining the three ingredients, as the impurities must first be removed; and the only preliminary solvent for this purpose, which the writer has found to answer perfectly,

is a mixture of equal measures of strong alcohol and water. A very concentrated solution, in the proportion of two parts of liquid to one of tannin, can be formed with the aid of heat, which filters with the greatest facility, leaving the resinous coloring matter and the metals untouched.

Alcohol alone, in the proportion of four to one of tannin, would not filter well. Water, in the proportion of at least four to one of tannin, would not filter even as rapidly as the solution with alcohol; and whilst the alcoholic solution becomes turbid with water, the aqueous solution never became clear from the first, and moreover was always much darkened by the metallic impurities forming colored soluble tannates. The preliminary solvent, and permanent solvent above proposed are therefore the only available ones. These form a light green, thin, syrupy solution, miscible with glycerin and water in all proportions without losing their brightness, and forming in a more dilute condition colorless solutions.

From these observations the following formula is deduced:

Take of Tannin	. . . .	8 troy-ounces.
Glycerin	. . . .	4 " "
Strong alcohol	. . .	8 fluid-ounces.
Water	. . . .	8 " "

Mix the alcohol and water; add the tannin and apply heat until the tannin has dissolved. Filter hot, then add the glycerin and evaporate by a careful heat until the solution weighs 16 troy-ounces. —*The Pharmacist*, *Dec.*, 1871.

HÆMOSTATIC PROPERTIES OF ALNUS INCANA.

Thomas R. Dupuis, M.D., Prof. Botany in Royal College of Physicians and Surgeons, Kingston (*Canada Lancet*), recommends the *Alnus Incana*, Willd. (Tag alder), so common in the States and Canadas, as an excellent hæmostatic. He has prescribed the bark both externally and internally, and has never observed any ill effects follow its use, except occasionally nausea and vomiting when taken too freely. Four cases are related—three of wounds and one of serious epistaxis—which were successfully treated with this remedy. He has also prescribed it in hæmoptysis and in menorrhagia with benefit; it is also well adapted to any internal or external passive hæmorrhages in which astringents are generally esteemed beneficial.

In closing his article, Dr. Dupuis solicits for the decoction of the bark of Tag alder a trial from all those who may be interested in the development of the medical remedies of our own country.—*Medical Press, Jan.* 3, 1872.

NOTE ON THE DIGESTION OF MINERAL SUBSTANCES.*

By Richard V. Tuson, F. C. S.

Professor of Chemistry in the Royal Veterinary College.

Physiologists and chemists have hitherto entertained the belief that the principal, if not the sole function of the pepsin and acid contained in the gastric juice is to render soluble the albuminoid constituents of food, and thus prepare them for the subsequent process of absorption.

Conceiving, however, that it would be extremely interesting to study the effect, if any, of the solvent constituents of the gastric juice upon mineral substances, especially those employed as medicines, I have set myself the task of investigating this subject. The inquiry is yet but in its infancy; nevertheless the results already obtained are sufficiently positive and striking to induce me to "claim date" by placing on record the following experiments :—

Experiment 1.—A mixture of calomel† and distilled water containing 2 per cent. of hydrochloric acid.

Experiment 2.—A mixture of calomel, pepsin,‡ and distilled water.

Experiment 3.—A mixture of calomel, pepsin, and distilled water, containing 2 per cent. of hydrochloric acid.

These mixtures were placed in glass vessels, and kept at 38° C. (100·2 F.), *i. e.* at about the temperature of the body, for twenty-four hours, during which time they were occasionally stirred or shaken. They were then thrown on to filters of Swedish paper, and the filtrates saturated with sulphuretted hydrogen. The filtrates from Experiments 1 and 2 remained unaltered. The filtrate from Experiment 3 yielded a precipitate of sulphide of mercury.

The results of these experiments therefore show that neither dilute hydrochloric acid (2 per cent.) nor pepsin alone is capable of dissolving calomel, but that when these agents are mixed they do affect its

* Reprinted from the *Lancet*.

† The calomel employed in all the experiments was previously tested as to its purity.

‡ Pepsina porci, prepared by Messrs. Bullock and Reynolds.

solution, and, consequently, that the digestion of calomel, so far as its solution in artificial gastric juice is concerned, is brought about under the same conditions as that of the albuminoids.

The importance of this observation will become apparent, when it is borne in mind that it offers an additional explanation to those already published of the manner in which calomel enters the circulation in order that it may exercise the many therapeutic actions with which it is accredited. Whether or not oxide of antimony, sulphide of antimony and other so-called insoluble remedies, are dissolved by pepsin and dilute acid, is a problem which remains to be solved. The influence of different acids, the chemical composition and characters of the dissolved mineral, and its behavior when subjected to dialysis, also the action, if any, of peptones on inorganic bodies, have likewise to be determined; but these matters, together with many others, will form the subject of future communications.—*Pharm. Journal and Trans.*, *Dec.* 23, 1871.

LIQ. MAGNESIÆ BISULPHITIS, A REMEDY FOR CARDIALGIA (HEARTBURN).

By George Archbold, D.SC.

Some time ago a physician asked me the question, "Do the bisulphites prevent the butyric acid fermentation?" In order to give him an accurate answer, I promised to try two experiments. This I did. First, I proceeded to make butyric acid by fermentation of a mixture of chalk, cheese, and honey and water, and allowed the mixture to stand for four days. Secondly, in another vessel I proceeded in the same manner, using the same ingredients, with an addition of bisulphite of lime; set it aside for four days with the first, keeping them at a temperature of 80° F.; after which I subjected each to distillation with a little H Cl.* From the *first* I recovered a considerable amount of butyric acid, but from the second (containing bisulphite) I did not recover a trace. This at once proves that the bisulphites do prevent butyric acid fermentation. Now the object in ascertaining the fact was that a suitable remedy for heartburn might be discovered,

* For the first two days lactic acid is formed, which combines with the lime, but at the expiration of four days, the lactate of lime is replaced by butyrate of lime, which on being distilled with dilute hydrochloric acid, and the distillate treated with calcium chloride, is dried into two strata, the upper being butyric acid.

as, according to Dr. Leared, this common complaint is due to the presence of butyric acid in the stomach. "On considering the taste," says that gentleman, "experienced, as well as the conditions under which heartburn comes on, it seemed to me that the cause of it was the presence of butyric acid;" and from many experiments performed by that gentleman on himself and others by means of the pure acid, symptoms were produced in every respect similar to the complaint itself, so that there can be little doubt but that his theory is a correct one. The very fact that alkalies give relief prove its cause to be from an acid. When the stomach is overtaxed, and in certain weak conditions of digestion, fermentation takes place; butyric acid is set free from the food, *i. e.* it is formed out of its own elements, if the food be of a starchy nature; and, according to Leared "On Imperfect Digestion," page 249, "the acid, by being in excess, but not pure (or it would be soluble), rises to the surface of the contents of the stomach, when it combines with melted fats (for which it appears to have a strong affinity); the acrid mixture, on being presented to the cardiac orifice by the motions of the stomach, is instinctively rejected into the œsophagus, and, by the reversal of its proper movement, transmitted to the mouth, accompanied by the sensations of heartburn." Now, as bisulphites have the power of preventing this fermentation, they are well worthy the attention of the profession, but the great drawback is that the chief bisulphite manufactures are those of lime, soda and potash, these being objectionable, as they tend to injure the coats of the stomach. To remedy this failing, the thought at once suggested itself to me that a bisulphite of magnesia might be prepared; and magnesia being free from these objections, it may prove a valuable remedy, and is worth notice. I have not seen or heard anything of the preparation previous to my making it. I therefore give a brief outline of the process I adopt, and hope to enter more fully into the subject at a future time. I first treat magnesia carbonate with B. P. sulphurous acid, which, on evaporation, yields magnesia sulphite, $Mg\ SO_3$, which is not very soluble in distilled water. I then mix the sulphite of magnesia thus formed with distilled water, in the proportion of 16 grs. to ℥j, and pass into it sulphurous anhydride until a clear solution is obtained. The result is a solution of magnesia bisulphite.

The dose may be one tablespoonful, containing about nine grains of the salt; its action is a mild aperient antiseptic, preventing butyric

fermentation in the stomach, etc. I have tried it myself and on two other gentlemen, and, as far as I can judge, it has the desired effect. —*Pharm. Journ. and Trans.*, *Dec.* 23, 1871.

CHROMIUM AND ITS COMPOUNDS IN THE ARTS AND IN MEDICINE.

By Dr. Louis Feuchtwanger.

The following is a brief abstract of an interesting lecture on chromium, delivered before the Polytechnic Club of New York. It was fully illustrated by specimens:

"Chromium is a very remarkable metal, which is very sparingly distributed in the earth's crust. *Chromic iron* is the only mineral which is found in sufficient quantities to be useful as a source of this element. It is found in serpentine rocks, in veins and disseminated grains. It is quite abundant in Siberia, Styria, Asia Minor, the Shetland Islands, Cuba, and the United States. The lecturer described the deposits of Pennsylvania, Maryland, North Carolina and California, which he had carefully studied.

The constitution of Chromic Iron is exhibited by the formula FeO,Cr_2O_3 or $(FeO,MgO), (Al_2O_3,Cr_2O_3)$.

The following analyses exhibit the percentage composition:

Locality.	FeO.	MgO.	Cr_2O_3.	Al_2O_3.	SiO_2.	
Baltimore, *cryst.*	20·13	7·45	60·04	11·85		Abich.
" *massive.*	18·97	9·96	44·91	13·85	0·83	Abich.
Bolton, Canada.	35·68	15·03	45·90	3·20		Hunt.
L. Memphramagog.	21·28	18·13	49·75	11·30		Hunt.
Beresof.	18·42	6·68	64·17	10·83	0·91	Moberg.

The following minerals also contain chromium:

Crocoisite, PbO,CrO_3, containing 31·3 per cent. of Chromic acid.

Melanochroite, $3PbO,2CrO_3$, containing 23·3 per cent. of Chromic acid.

Vauquelinite, $3CuO,2CrO_3+2(3PbO,2CrO_3)$, containing 27·9 per cent. Chromic acid.

Pyrope, Bohemian Garnet, a silicate of alumina, iron, and magnesia, containing from two to six per cent. of Chromic acid.

Ouvarovite, Lime-Chrome Garnet. Silicate of lime and chromium, containing 22 per cent. of Chromic oxide.

Emerald, a silicate of glucina and alumina, colored by three-tenths of one per cent. of Chromic oxide, according to Klaproth.

The following are the more important applications of Chromium compounds in the arts:

1. The yellow or neutral chromate of potassa, is the basis of all the other preparations, being made directly from the chromic iron.

2. The red or bichromate of potassa, is obtained from the foregoing salt, and is extensively employed in the arts. In photography it is the basis of most of the printing processes, on account of the property which it has of rendering gelatine insoluble, by exposure to light. In dying, it is extensively used as a mordant. It is the material from which chromic oxide, chromic acid, and the metallic chromates are prepared.

3. Chromic oxide is the most insoluble, green pigment known, it is extensively used in printing "greenbacks," and in staining glass and painting porcelain.

4. Chromic acid is a powerful oxidizing agent. It is extensively used on this account in chemical researches, is found very useful as an exciting fluid in galvanic batteries, was used for preparing the beautiful "mauve red" from aniline, is employed in bleaching palm oil, destroying the empyreumatic impurities of acetic acid, etc.

5. The chromates of lead, bismuth, baryta, strontia and zinc are extensively used as pigments, varying in tint from the vermillion red of the basic chromate of lead, to the pale straw yellow of the strontia salt. The common "chrome green" is a mixture of chromate of lead and Prussian blue.

6. The beautiful violet chromic chloride, has recently been introduced as a cancer remedy.

7. Chromium steel, made by combining about five per cent. of chromium with cast iron, possesses most remarkable properties. On account of its excessive hardness, it is the best metal for the construction of safes, while its tensile strength, equal to a strain of 140,000 pounds to the square inch, specially adapts it to the construction of suspension bridges; it was employed in the St. Louis bridge, and will be used in the Brooklyn bridge.—*Amer. Chem., Dec.*, 1871, *p.* 224.

A REACTION OF PHENOL.

By C. Crump.

If a current of artificial coal-gas be passed into a flask containing a mixture of equal parts of phenol and strong sulphuric acid, the liquid soon becomes colored and thick, so that unless the flask be gently

heated, the passage of the gas is interrupted. After a few hours, if the contents of the flask be poured into water, a red coloring matter is obtained insoluble in water, soluble in alcohol and in alkaline solutions, its color being changed by the latter to blue or green. The formation of the color is not prevented by previously passing the gas through dilute sulphuric acid, solution of caustic potash, or of cupreous chloride either in hydrochloric acid or ammonia, nor does the color seem to be produced by passing any of the ordinary constituents of coal-gas into the mixture. A similar substance, however, seems to be formed by digesting the mixture of phenol and sulphuric acid for some time at a gentle heat with two or three times its volume of commercial benzol.—*Chemical News, Dec.* 22, 1871.

TESTING AND QUANTITATIVE ESTIMATION OF ARACHIS OIL IN OLIVE OIL.

By A. Renard.

The author bases this process upon the detection of arachidic acid. A quantity of 10 grms. of the oil to be tested is first saponified; the soap obtained having been decomposed by hydrochloric acid, the fatty acids set free are dissolved in 50 c. c. of alcohol at 95 per cent., the warm solution is precipitated by acetate of lead, and filtered after having become cold. The residue on the filter is treated with very strong and pure ether, which dissolves the oleate of lead, leaving margarate, palmitate, and arachidate of that metal. This compound is heated, and then treated with warm dilute hydrochloric acid; the fatty acids are separated by decantation from the solution of chloride of lead. When the fatty acids are cooled, and thereby solidified, the cake thus obtained is dissolved in 50 c. c. of alcohol at 95 per cent. by the aid of heat; a single drop of hydrochloric acid may have to be added to this solution in order to render it free from a slight cloudiness. If the olive oil operated upon happens to contain arachis oil, there will separate from the alcoholic solution, on cooling, crystals of arachidic acid. In order to estimate the quantity thereof, the crystalline mass is collected on a filter, first washed with a quantity of from 10 to 20 c. c. of the strong alcohol just alluded to, and next with ordinary alcohol, wherein this acid is insoluble. The substance upon the filter is next treated with boiling hot absolute alcohol, wherein the acid is dissolved, the filtrate collected in a previously weighed capsule,

and the residue, left after a carefully conducted evaporation, weighed. The fusion-point of arachidic acid, obtained in this manner, is about 71°; of the pure substance, 73°. The author enters further into lengthy details as to the method of estimating the minute quantity of the arachidic acid dissolved (and therefore not collected along with the great bulk) in the strong alcohol used in these operations; the process is such that it may, with due care, yield very accurate results. Arachis oil is better known as ground-nut oil.—*Chem. News, from Comptes Rendus, Dec.* 4, 1871.

A NEW DYE-STUFF.

By J. M. Merrick, S. B.

I have recently had given to me, to be tested in comparison with Persian Berries and Flavine, a new yellow dye-stuff which possesses very unusual properties.

It occurs in the form of a brownish yellow powder, wholly organic in its nature, neutral and not very soluble in water.

A given weight of it communicates to mordanted print cloths a rich persistent orange color, (or yellow if lesser amount be used), and is equal in this respect to three and one-half times its weight in Flavine, or four and one-half times its weight of the best Persian Berries. The process of manufacturing this coloring matter is—it is understood—kept a secret, but it is certain that it is not an Aniline product. It is sold under the name of Aurantine, and if any reader of the *Chemist* can give me any information as to its origin or manufacture I shall be much indebted to him.

I find that by diffusing a small amount of this dye-stuff in water at 180° F. and working the mordanted cloth in this bath, a rich full Flavine yellow is produced. On raising the temperature the yellow rapidly changes to a fine orange, which seems durable and persistent.

After satisfying myself of its worth I had some tested by a large Print Works, and their estimate of its value agreed very nearly with mine. It is an interesting product and seems by its color to merit its name—Aurantine.—*Amer. Chem.*, 1872, *Jan.*, 253.

Varieties.

The World's Fair at Vienna, in 1873, will embrace 26 classes, the third class representing the chemical industry according to the following plan: *a.*, chemical products for technical and pharmaceutical purposes (acids, salts, chemical preparations of all kinds); *b.*, materials and products of pharmacy, mineral water, &c.; *c.*, materials and products of the industry in fats (stearic and oleic acid, glycerin, soaps, candles, &c.); *d.*, products of dry distillation) refined petroleum, coal oil, paraffin, carbolic acid, benzine, anilin, &c.); *e.*, volatile oils. perfumery; *f.*, matches, &c.; *g.*, colors and dyestuffs of mineral, metallic or organic origin; *h.*, washed, colored and bleached resins, sealing wax, varnishes, albumin, isinglass, glue, starch, dextrin, &c.; *i.* models and diagrams of chemical apparatus and processes; *k.*, statistics of production.—*Pharm. Zeituny, Nov* 18, 1871.

Eau de Goudron.—The *Eau de Goudron*, which a chemist in Paris, by the name of Guyot, is advertising and selling largely, is little else than tar water—aqua picis. It is found of great efficacy in the treatment of bronchorrhœa and allied complaints.—*Chemist and Druggist, Dec.*, 1871.

Carbolic Acid Paper.—Carbolic acid paper, which is now much used for packing fresh meats, for the purpose of preserving them against spoiling, is made by melting five parts of stearine at a gentle heat, and then stirring in thoroughly two parts of carbolic acid; after which five parts of melted paraffin are to be added. The whole is to be well stirred together until it cools; after which it is melted and applied with a brush to the paper, in quires, in the same way as in preparing the waxed paper so much used in Europe for wrapping various articles.—*Chemist and Druggist, Dec.*, 1871.

Test for Absorption of Carbolic Acid.—By C. H. Hall, M. D.—In treating wounds with carbolic acid, I have found that when the acid was absorbed in a slight degree, healthy action would set up more rapidly, and the healing process go on more kindly; but when absorption takes place to such an extent that the acid produces its toxical effect, with the attendant symptoms of depression, it not only delays but complicates recovery. My attention was called, in a late journal, to the use of nitric acid as a test for the degree of absorption, and I have found by experiment that the amount of the absorption can be accurately ascertained, and regulated to suit the emergency of any case.

I take a given quantity of urine from the patient under treatment—about two ounces—and when fresh drawn, treat it with five drops of nitric acid; if carbolic acid is absorbed in a toxical quantity, the urine will turn brown very rapidly and assume a dark chocolate color, which will be changed to a golden yellow by the addition of an excess of spirits of ammonia. The *d gree of rapidity with which these changes occur*, will indicate the amount of absorption, and the receptivity of the system to its action.—*Oregon Medical and Surgical Reporter, Oct.*, 1871.

Singular Effects of the Hydrate of Chloral.—Reported by O H Seeds, M.D., of Columbus, Texas.—October 25. I have under treatment Mrs. J. N., æt. 26, who has had leucorrhœa ever since puberty, accompanied with more or less dysmenorrhœa; but she has suffered more from the latter since marriage, five or six years ago. She is of a nervous temperament; dyspeptic the greater part of her life; has never been pregnant; during the menstruation, and the suffering attending it, has taken a considerable quantity of morphia. From the excellent effects I have observed from chloral in a great number of cases, I was led to give it to her, and, after a thorough trial at different times, for several months, during menstruation, after and before, in small and large doses, I found that, in doses of twenty grains, it causes natural, quiet sleep, lasting from four to six hours, when its soporific effects begin to pass off; then follows diplopia in its worst form, succeeded in fifteen or twenty minutes by muscæ volitantes. To use her own language, "everything appears double, and flies or dark spots pass before her eyes." Her eyelids become red and swollen; conjunctiva injected. She complains of vertigo and nausea; but all unpleasant symptoms disappear in about the same length of time that the drug acted on her as a hypnotic. It always affects her in proportion to the quantity given. I would also state that this patient bears chloroform very well; no bad effects are produced, excepting once in a while a slight nausea some hours afterwards.—*Amer. Jour. Med. Sci., Jan.*, 1872.

Monobromized Camphor.—Prof. Deneffe, of Ghent, states (*Presse Méd. Belge*, Nov. 19) that for more than two years he has employed a combination of camphor and bromine, which he thinks is entitled to general attention. The celebrated chemist Laurent showed that bromine will easily unite with camphor at the ordinary temperature; but that the product is slowly decomposed by exposure to the air. M. Swartz, Professor of Chemistry at Ghent, has shown that this body heated in a closed vessel is resolved into hydrobromic acid and a crystallized compound which is monobromized camphor (*camphor monobromé*), a body differing only from ordinary camphor by the substitution of an atom of bromine for an atom of hydrogen. It is a perfectly crystallized substance, fusible at 76° C. and boiling at 274°. At Prof. Swartz's request, M. Deneffe has investigted the therapeutical properties of this body, and has found it to be an excellent sedative for the nervous system. He intends shortly to publish his cases in proof of this, and, in the present communication, furnishes one of these, in which excitement of the nervous system passing into true delirium tremens was effectually relieved. He prescribed it in the form of pills, 70 grains being made into thirty pills, of which one was given every hour until twenty had been taken. For three days longer from forty five to sixty grains were given in twenty-four hours, the quantity being diminished from forty-five to thirty grains daily for a week longer. The recovery was progressive and stable.—*Amer. Jour. of Med. Sciences, Jan.*, 1872, *from Med. Times and Gazette, Dec.* 2, 1871.

Inextinguishable Lamp.—A new light, which seems fitted to be of use in submarine construction of works, is in use in England. It is a cylinder of tin,

with a top filled with a phosphide of calcium, prepared by the inventor, a Mr. Holmes. When the lamp is thrown into the sea or river, the water. entering the cylinder, decomposes the phosphide of calcium, phosphuretted hydrogen results ; the latter escaping in great quantities ignites spontaneously, and burns with a brilliant light.—*Chemist and Druggist. Dec.* 15,1871, *from Scientific American*.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—At a meeting of the Board of Trustees the following Examining Committee was elected : Prof. Parrish, Messrs. Bunting, Shivers, Wiegand and Jenks.

The Committee of Arrangements for the Commencement in March next consists of Messrs. Taylor, Shinn and Bakes. Members desiring tickets should make application early in March.

The following gentlemen have attended the Laboratory of the College during the present session :

T. D. Addis, Pa.	C. B. Evans, Pa.	L. A. Matos, Cuba.
M. Alvarez Cuba.	B. T. Fairchild, Conn.	Wm. McMiller, Ky.
J. H. Bringhurst, Pa.	E. Z. Gross, Pa.	J. J. Miles, Miss.
C. S. Brown, Miss.	L. S. Harrison, O.	J. Oxley, Ky.
R. T. Brumby, Jr., Ga.	J. M. Harvey, Del.	E. Peirpoint, Ill.
W. C. Buntin, Ind.	H. Hazard, N. Y.	M. D. Richardson, Ky.
R. Y. Chedister, Jr., N.J.	F. P. Hill, O.	H. Schmidt, O.
J. B. Cherry, Pa.	J. Hurty, Ill.	C. O. Thiebaud, Ind.
A. C. Curtis, O.	J. M. Jones, Pa.	I. Tull, Pa.
J. H. Dawson, N .Y.	W. H. Light, Ky.	J. Wiley, Pa.
E. E. Desh, Pa.	T. D. McElhenie, O.	J. M. Younglove, Ky.

The bill approved by the meeting of druggists and pharmacists held Dec. 19th, has been introduced by Hon. Mr. Dechert in the Senate, and by Hon. Mr. Marks in the House of the Legislature of Pennsylvania.

The Maryland College of Pharmacy, at its meeting held in December, resolved to hold pharmaceutical meetings on the evenings of the first and third Wednesday of each month. The next annual meeting will be held on the second Thursday of March next, and Dr. Steiner, formerly one of the professors of this College, was invited to deliver the annual address.

At the January meeting the following officers were chosen to serve for the ensuing year: J. Faris Mooré, President; Joseph Roberts and Richard Sappington, Vice Presidents; Edwin Eareckson, Secretary; J. Brown Baxley, Treasurer; Louis Dohme, Ferd. Hassencamp, John F. Hancock, Board of Examiners.

The subject of legislation and a proposed amendment to the Baltimore pharmaceutical law were discussed, but no definite action agreed upon.

The lectures are delivered regularly to an attentive class of students.

A regular meeting of the Society of the Alumni of this College was held Jan. 11th. The report of the President, Mr. Wm. Silver Thompson, was read and ordered to be entered on the proceedings of the Society. This Society has been in existence a little more than seven months, during which time a thorough organization has been effected, and it is now in good working order.

The following officers were elected for the ensuing year: Wm. Silver Thompson, President; Charles E. Dohme, Vice President; J. Henry Hancock, Secretary; A. A. Kleinschmidt, Treasurer; John Sohl, Charles Caspari, Jr., F. D. Wood, S. J. Beet, Executive Board.

Mr. C. E. Dohme read a very interesting paper on Iodoform, which compound has of late years attracted much attention among the medical profession.

Cincinnati College of Pharmacy.—At a meeting held Jan. 16th, Prof. E. S. Wayne delivered a lecture on the Sponge, and presented the College with a handsome collection of sponges, some of which are rarely met with. A discourse on the lac insect, shellac and lac dye was also delivered, after which the College proceeded to discuss the pharmacy bill recently introduced in the Legislature of Ohio. The College disapproved of this bill and appointed a committee to draft a new bill or amend the one now pending. The result of this labor is to be presented to the Legislature now in session.

The class of this College is attended by 32 students.

California Pharmaceutical Society.—The 26th meeting of this Society was held Dec. 13th, 1871, Mr. Wm. H. Wood presiding.

After the approval of the minutes and the election of new members Mr. Steele proposed several gentlemen as honorary members, which elicited an animated discussion as to what should constitute the true basis for this distinction; Mr. Steele having stated in support of his proposition that one or more of the names proposed had been upon the roll list of the Society, that they were genial and courteous gentlemen whose unfortunate circumstances did not admit of their paying their monthly dues, and that, in his estimation, it would be an act of courtesy to elect them to the position.

Mr. Wenzell replied that he was opposed to the indiscriminate and wholesale bestowal of honorary memberships, which was not only injudicious but reflective upon the character and dignity of the Society, that only those whose literary and scientific attainments had given them prominence in the profession were, in his opinion, entitled to this, the highest honor which a Society was capable of conferring.

Mr. Simpson argued that the simple fact of impecunity and urbanity, associated with an enviable reputation, should not in itself constitute the requirements for conferring the title, that it was the prerogative and should be the aim of the Society to elect only those possessing marked professional acquirements.

By Mr. Steele's request his motion was then withdrawn.

A resolution to amend the Constitution was tabled, while another one, changing the words "Executive Committee" to "Board of Directors" was carried, to conform with the laws in view of obtaining an act of incorporation.

The Contributing Committee for the relief of the pharmaceutists of Chicago suffering from the late fire, reported through Mr. Steele that $744 50 had been collected, from which should be deducted $2.50, exchange paid for gold. The first remittance, of $800, currency, was made by telegraph draft, and the second, $30, by postal order.

A communication from Prof. Ebert, of Chicago, was read, acknowledging, with grateful expressions of appreciation, on behalf of the Chicago College of Pharmacy, the Society's opportune and munificent remittance. The startling intelligence was also disclosed that sixty retail and all but one wholesale drug houses had been swept away by the disastrous fire.

Messrs. Mallinckrodt & Co., manufacturing chemists, of St. Louis, donated to the Society a box of chemicals, which was gratefully accepted.

Mr. Wenzell, by request, then read a paper on "Abietene," a new hydrocarbon, obtained from the *Pinus Sabiniana*, an indigenous tree found on the foothills of the Sierra Nevada mountains and the foot-hills of California. Mr. W. illustrated his subject with specimen preparations, and was listened to by all present with wrapt attention.

Mr. Wood moved that the thanks of the Society be tendered to the author for his able and exceedingly interesting paper.*

The British Pharmaceutical Society held an interesting pharmaceutical meeting December 6th. Among the specimens presented to the museum of the Society, the barks, roots and sections of stems of different species of cinchona are especially noteworthy, all the specimens being in illustration of Mr. Howard's paper noticed on pages 25—29 of our last number.

A paper by Prof Redwood was read, on "The Substitution of Proportional or Relational Numbers for Specified Weights and Measures in the Description of Processes in the Pharmacopœia." The Professor advocates the use of the terms *part* and *measure;* the latter term, where it occurs together with the former in one formula, meaning the water measure of the unit of weight, whatever that might be.

A paper by T. Miller, of Sheffield, "On a Method for the Estimation of Morphia in Opium," was read and discussed. The method proposed is based upon the liberation by morphia of iodine from iodic acid, dissolving the iodine rapidly in bisulphide of carbon, and comparing it with a similar standard solution made with morphia. The solution deepest in color is then diluted with measured quantities of bisulphide of carbon until the two are alike in color; by simple calculation the percentage of morphia is readily found. Several precautions must be observed, to which we may allude in our next number.

The President, Mr. A. F. Hazelden, also read a paper containing practical observations on "The Syrup and Resin of Tolu, and Tincture of Cinnamon."

École Superieure de Pharmacie de Paris.—This school was re-opened on the 15th of November, the Director, Mr. Bussy, presiding. Mr. Buignet, Professor of Physics, and General Secretary of the Paris Pharmaceutical Society, pronounced a eulogy on Guibourt. Professors Jungfleisch and Bourgoin read

* Mr. Wenzell's paper will be published in our next number.—Ed. Am. Journ. Ph.

the reports on the prize essays for 1870 and 1871. Prof. Planchon reported on the prizes of the pharmaceutical school and on the Ménier prize query.

The query proposed for the Ménier prize for 1872 is as follows: History of the insects which may be employed as vesicants.—*Jour. Pharm. et Chim.* 1871, 448.

The Next International Pharmaceutical Congress will not be held this year, but has been postponed until 1874. The Directories of the North German, South German and Austrian Apothecaries' Societies, by letters of May and June, 1871, suggested the postponement of the Congress for two years, mainly on the ground of the unsettled condition of France and the proposed consolidation of the two German Societies. The Pharmaceutical Society of St. Petersburg, at the meeting held Sept. 7th, adopted the same views.—*Pharm. Zeitschr. f. Russl.*, 1871, 631.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held on the afternoon of January 16th, 1872. Prof. Procter presided and Edwin McC. Boring was appointed Registrar *pro tem.* The minutes of the last meeting were read and approved.

Prof. Maisch exhibited the seed of *Myristica fatua*, or male nutmeg, which he stated was occasionally found in the shops on the Continent, generally worm-eaten, in three conditions, kernel, kernel and shell, and kernel, seed-shell and mace. The flavor of the kernel and mace is greatly inferior to that of the true nutmeg and mace. He did not know to what use they were applied unless it were that of adulteration.

The Professor then exhibited a specimen of Peruvian bark and a very large cone from *Pinus Lambertiana*. The Peruvian bark, he stated, had been sold to this city, by a New York house, for calisaya, but it possessed none of its characters, having a coarsely fibrous liber, covered with a thick, soft cork; a similar, if not the same article, had been sold, also from New York, to this city, as red bark. A conversation then followed between Messrs. Procter and Maisch in regard to the cinchonas. Prof. Maisch stated that Mr. Broughton and Mr. Howard had found an unusually large percentage of alkaloids in barks from cinchona trees cultivated in India, proving that careful cultivation increases the percentage of alkaloids. Prof. Procter asked the question, whether the percentage of alkaloids in the younger and older bark of cinchona trees growing in South America had ever been ascertained? Prof. Maisch replied that Professor Karsten, who had spent about ten years in Venezuela, was perhaps the only one who had examined, on the spot, South American cinchona bark from well-authenticated species, and found that the percentage of alkaloids increased as the young bark became older.

The California pine cone had been sent by Mr. Wenzell, of San Francisco who recently read a paper before the California Pharmaceutical Society on the hydrocarbon obtained from another species, the volatile oil of which appears to be extensively used in California for various purposes.

Prof. Bridges then spoke of the bicarbonate of soda presented to the College from the Pennsylvania Salt Works, at Natrona (on exhibition at our last meeting), and stated that he had examined one specimen, and that several others were in course of examination by one of the students in the practical laboratory connected with our College. The specimens will probably prove to be almost free from carbonate.

Prof. Maisch stated that the specimen of capsicum presented by Mr. Heinitsh at a former meeting, was the *Capsicum minimum* indigenous to Mexico. Mr. Heinitsh said that it had been introduced from Mexico into several of our Southern States by some army officers, and that the name given to it by the Mexicans signified in our language "mad pepper."

The meeting then adjourned.

Edwin McC. Boring, *Registrar pro tem.*

Editorial Department.

The Language used in Prescriptions.—Several times since its creation, the New York Board for examining and licensing druggists and prescription clerks, has found it necessary to use the daily press for the purpose of explaining their action to the public. These effusions are not always very happy ones, and have sometimes produced an effect quite opposite to the one intended. Such a one was contained in the New York *Times* of January 9th. We have no intention to analyze that document, which was partly done by Mr. D. C. Robbins in the same newspaper, issued January 11th, and we do not believe that it would be of sufficient interest to our readers to point out the numerous mistakes and logical contradictions contained therein. But a statement requires to be noticed since it is apt to be used by the public as an argument against the employment of Latin as the technical language of prescription. We are informed that a number of applicants could not make out a prescription, calling for Tinct. gentian. co., Infus. ejusd. (namely Infus. gentian. co.), and that such a prescription had actually been sent away by a number of New York apothecaries as unintelligible, until the mysterious *ejusdem* (of the like) was finally correctly interpreted by a man of twenty years experience in the business.

This reminds us of a story we heard twenty years ago in our National Capital, where a prescription was said to have been received calling, among other articles, for Aq. bull.; the apothecary, anxious to fill the prescription, retained it and sent to some of his professional friends for the required bull's water, until he was informed that boiling water was meant. Now, if this was not true, it was at least well invented.

In the above mentioned newspaper article it is, however, granted that most of the aspirants were familiar with the Latin names of the drugs and medicines, and that they *can manage to scrub along until some extra careful* (*!?*) *physician writes an elaborate series of directions in Latin.* The italicized passage needs no comment either for sensible physicians or practical pharmacists; it was not

intended for them, but for the public, to make them alive to the danger they run when placing their lives into the hands of *ignorant druggists.*

And what effect has this article had upon the public as represented by the press? Several newspapers of Philadelphia, in commenting upon these and other statements, use them as so many arguments in favor of abandoning the technical Latin terms altogether, and of making physicians write their prescriptions, and apothecaries label their bottles, &c., in the vernacular. The folly of such a demand is quite apparent to those, who have paid a little attention to the popular names of drugs which are in use in different localities; they can very well understand the endless confusion, and even danger, that would result from such an innovation.

On the other hand, if an extra-careful physician should take the pains of writing an elaborate series of directions in Latin, he might almost, with a certainty, expect that they would not be followed by the pharmacist to the letter, for the simple reason that the pharmacist understands the manipulations in preparing and compounding usually much better than the prescriber, who probably has never handled a pestle or a pill machine. If, however, directions to the patient are meant in the above quotation, we would point its author to Pereira's Physician's Prescription book, pages 9 and 10, where the objections to such a practice are briefly but well stated, as also its injustice towards the compounder and the patient.

Burning of a Laboratory and Drug Store.—On the afternoon of December 30th last, the store and laboratory of Mr. Frederick Stearns, at Detroit, was destroyed by fire, which originated from the breaking of one or more bottles of rhigolene, and resulted in the death of four employees—the engineer and three boys of 15 years and upwards. The building, 23 x 100 feet, was four stories high, with the cellar running the entire length of the building, and with vaults under the sidewalks, used for the storage of liquors, alcohol, ether, phosphorus, oils and similar combustible material; the upper floor having been arcaded, another floor was thus obtained, making, with the cellar, six in all. The ground floor was occupied by the store, which communicated with the cellar by a stairway near its middle, and running at right angles with its length. The stairways leading to the upper floors were in the rear part of the building, on one side, the other side being occupied by the hatchway, which was open. The second floor was the wholesale order and stock room, the three upper floors being used as mill-room, press room, laboratory, &c., with the requisite apparatus. The steam boiler was in the vault, and in the cellar the gas had to be kept burning continually.

A dozen 12-oz. bottles of rhigolene having been received from Boston, a boy was directed to carry the dangerous article into the vault. Immediately after getting into the cellar a bottle was heard to break, and almost in the same instant a volume of fire rushed up the stairway in the centre of the store and the hatchway in the rear, the pressure in the store being thereby increased to such a degree that the front door could not be opened from within, and had to be forced from without, to offer a means of escape for the clerks and customers then present; the men engaged on the second floor had to jump out of the win-

dow; while those on the three upper floors, including Mr. Stearns, who was on the fourth, and a number of girls on the fifth floor, escaped through the skylight, which was in the centre of the roof. As soon as this was opened the flames and smoke followed instantly, threatening to cut off the last retreat. However, all hands reached the roof in safety, and then the task commenced to lower them down upon the roofs of the adjoining buildings, which was finally accomplished. The fire made headway with such astonishing rapidity, that about twenty seconds elapsed from the time the bottle was broken until refuge had to be sought through the skylight. In the cellar, the engineer was badly burned, while the three boys escaped scorching and reached the vault in safety, merely to be suffocated there.

The vapors of the rhigolene escaping from the broken bottle was probably ignited by the gas flame; the other bottles bursting, the escaping liquid at once produced such an immense flame that the fire was instantly communicated to all the floors, and the fine building was reduced to ruins in less than four hours. The four dead bodies were then recovered. Those of the three boys preserved for a week an almost life-like look. but all efforts of restoring life proved unavailing. The engineer had been in the employ of Mr. Stearns for 13 years.

This sad accident and loss of life should be a warning to all to exercise the utmost care, and not handle this extremely volatile liquid in proximity to any light or fire.

Medical Supplies on Railroads.—We learn from the *Pharm. Zeitung*, that the trains on the Altoona and Kiel Railroad, in Northern Germany, carry medicine chests containing remedies suitable for use in cases of emergency, as sudden sickness or accidents, until the aid of a physician can be secured. The line in question is a short one; but the arrangement shows a commendable forethought on the part of the company, and a care for the possible needs of the passengers which it would be well to imitate in this country, where railroad lines frequently extend over thousands of miles; much inconvenience, delay and consequent suffering might thereby be obviated.

Reliable Advertisements.—One of our cotemporaries, a medical journal in good standing, in calling attention to the advertisements as containing matters of interest and importance to the profession, states: "We exclude advertisements we believe to be unreliable." Among the advertisements we notice, besides a number of specialities, a remedy for dysmenorrhœa, which is stated to be "a more important addition to the physician's list of valuable remedies than the hydrate of chloral or any of the various preparations which have been introduced to the profession since the discovery of anæsthesia;" also two "hair renewers," which have been shown by Prof. Chandler to contain lead.

These articles are probable quite as reliable as the Hamburg tea (senna and manna, advertised in Philadelphia by a grocer and by an apothecary, as a blood purifier and a *protection against smallpox.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pharmacopœa Norvegica. Editio altera. Regia auctoritate edita. Christianiæ, 1870. Impensis Alb. Cammermeyer.

The former Norwegian Pharmacopœia was issued in 1854, and contained 687 medicaments, of which number 250 have been omitted and about 60 introduced in the present edition, the dropped formulas being mostly of antiquated pharmaceutical preparations. The Committee of Revision, consisting of two physicians (Drs. Lochmann and Lund) and two pharmacists (Messrs. Moller and Huoslef), has been engaged on this work fully three years, and has produced a pharmacopœia comparing favorably with other modern ones.

The Pharmacopœia is printed in the Latin language, the introductory chapter containing the general rules and directions, and being followed by crude drugs, chemical and pharmaceutical preparations, in one alphabetical arrangement. To the text quite a number of tables are added, namely: List of reagents and test liquids; Table comparing the medicinal with the metrical weight, approximately and accurately (lb. j = ℥xij = grm. 360 [approx.] = grm. 357·8452 [accurate]); Table comparing the metrical with the medicinal weight; List of very poisonous articles, marked †† and with red letters, to be kept in a locked closet (veratria, morphia, strychnia, atropia, arsenic, hydrocyanic acid, white precipitate, corrosive sublimate, oxide of mercury, and all preparations containing the same); List of poisonous articles, marked † and with red letters, to be enclosed in tin boxes or vessels (mostly narcotic drugs and their pharmaceutical preparations, salts of zinc, lead, copper, antimony, &c.); Table of the maximum doses for adults of powerful medicines (when larger doses are prescribed the apothecary must consult the physician before dispensing); Six tables of the specific gravity and strength of alcohol, ammonia, acetic, hydrochloric, nitric and sulphuric acid; Table of solubility of various chemicals in cold water; Table of the atomic weight of elements, the compounds of which are used in medicine; Table of changes of names and strength of medicines from those of the former pharmacopœia.

The Pharmacopœia recognizes three degrees of the fineness of powders: *pulvis crassus*, the meshes being 1·5 mm. in diameter; *pulvis communis*, 1000 meshes to the square cm.; *pulvis subtilissimus*, 2500 meshes to the square cm. The sieves, therefore, are to have about 16, 70 and 120 meshes to the linear inch. Species, unless otherwise ordered, are to be passed through a No. 6 sieve (diameter of meshes, 4·5 mm.) Maceration is to be effected at a temperature of 15 to 25° C. (59 to 77° F); digestion at 35 to 40° C. (95 to 104° F.) Unless other proportions are ordered, 12 grm. of plaster are used in spreading of the size of 100 square cm., except adhesive plaster, of which 2 grm., and empl. canthar. colatum, of which 10 grm. are used.

If a prescription for pills is incomplete, the pharmacist uses water, syrup, alcohol, glycerin or powdered althea to form the mass, which is divided so that each pill contains 0·1 grm. of the articles prescribed: the pills to be rolled in lycopodium. These additions are to be noted on the prescription.

In dispensing medicines for internal use, the directions are written upon

white paper: red or some other color is used when the article is employed externally.

In the enumeration of the drugs and preparations, after the present officinal name that of the first edition of the Norwegian Pharmacopœia is given next, then follows the officinal names, and where the preparations vary in strength these variations are likewise indicated, of the Swedish, Danish, Prussian, German, Austrian, British, United States and French Pharmacopœias, and finally the popular name is given before the formula. The blistering plaster contains 6 parts cantharides in 22 parts of the plaster; the heading is as follows:

EMPLASTRUM CANTHARIDUM ORDINARIUM.

Ph. N. Ed. I.

Ph. Dan.: Emplastrum cantharidum. Ph. Bor. Ph. Germ.: Emplastrum cantharidum ordinarium (*canthar.*, 25 *per ct.*) *Ph. Austr.: Emplastrum cantharidum* (33 *per ct.*) *Ph. Brit.: Empl. cantharidis* (33 *per ct.*) *Cfr. Ph. U. St.: Ceratum cantharidis* (33 *per ct.*) *Ph. Fr.: Emplâtre vésicatoire* (33 *per ct.*)

Spanksflue—Plaster.

To each drug a short concise description is added, and attention drawn to probable admixtures or substitutions, these descriptions being sufficiently definite for those acquainted with drugs, but, like in all other pharmacopœias with a similar feature, are insufficient for the beginner. The following description of uva ursi will explain this:

Arctostaphylos uva ursi, *Sprengel* (Arbutus uva ursi, *L.*) Ericineæ fruticulus in Norvegia frequens.

Folia obovata, coriacea, integerrima, glabra, nitida, reticulato-venosa. Ne confundantur cum foliis Vaccinii vitis idææ, *L.*, margine reflexis, subtus opacis et fusco punctatis.

Folia æstate colligenda.

But few formulas are given for chemical preparations; except in cases where they are intended of a certain condition, chemicals are merely described, and the principal reactions of identity and purity appended. The nomenclature is substantially the same as adopted by Berzelius, namely, acetas morphicus, oxydum hydrargiricum, subnitras bismuthicus, &c. The chemical formulas, according to the old notation, follow the officinal name.

The formulas for the galenical preparations contain short accurate directions which are not intended for the mere tyro; the processes are as simple as the nature of the product to be obtained will admit. Displacement is not practiced; tinctures, unless otherwise directed, are made by heating the suitably comminuted drug and the menstruum in a retort to a slow boiling for half an hour, so that scarcely any distillate is obtained; after cooling, the distillate is mixed with the contents of the retort, the liquid expressed and filtered.

All quantities are expressed in parts by weight.

Taken as a whole, the Norwegian Pharmacopœia is up to the requirements of the present time, although the American pharmacist would hardly be pleased with all the manipulations. We append the formulas of a few preparations, which are not or but little known here, and retain the officinal names of the Pharmacopœia unaltered:

Massa pilularum tonico-nervinarum.

℞. Sulphatis ferrosi,
Gummi-resinæ Asæ fœtidæ,
Extracti Cardui benedicti,
of each 1 p.
Powder and mix.

Mixtura acida.

℞. Acidi sulphurici diluti, 2 p.
Aquæ, 80 p.
Syrupi Rubi idæi, 18 p.
Mix.

Mixtura aperiens.

℞. Infusi Rhei alkalini, 3 p.
Tartratis kalici, 1 p.
Aquæ, 2 p.
Mix. To be prepared extemporaneously.

Oleum carminativum.

℞. Olei Chamomillæ infusi, 90 p.
Ætherolei Menthæ crispæ, 4 p.
" Carvi,
" Cumini,
" Fœniculi, of each 2 p.
Mix by agitation.

Pulvis refrigerans.

℞. Elæosacchari Citri,
Nitratis kalici, of each 1 p.
Bitartratis kalici, 6 p.
Powder and mix.

Species demulcentes.

℞. Fructuum Cannabis contusorum,
Herbæ Malvæ concisæ,
Radicis Althææ, " of each 30 p.
Radicis Glycyrrhizæ concisæ, 10 p.
Mix.

Species emollientes.

℞. Florum Chamomillæ,
" Sambuci,
Herbæ Malvæ,
" Meliloti,
Radicis Althææ, of each, cut, 10 p.
Seminum Lini contusorum, 50 p.
Mix.

Spiritus antiparalyticus.

℞. Ætherolei Juniperi,
Pyrolei Succini rectificati,
of each 4 p.
Spiritus camphorati, 60 p.
Solutionis Ammoniaci,
Liquoris Supercarbonatis ammonici pyroleosi, of each 16 p.
Mix.

Syrupus opiatus vel thebaicus.

℞. Tincturæ Opii, 1 p.
Syrupi Sacchari, 99 p.
Mix.

The Pharmacist and Chemical Record. A monthly Journal of Pharmacy, Chemistry and the Collateral Sciences. Published by the Chicago College of Pharmacy. N. Gray Bartlett, editor; Albert E Ebert, associate editor.

We hail with pleasure the resurrection of our cotemporary, which comes to us in a double number, full of vigor and energy. Of it it may be truly said, that it was "baptized in fire." May it hereafter not meet with any similar calamity to interrupt its course of usefulness in the cause of pharmacy.

The Journal of the Gynæcological Society of Boston. Edited by Winslow Lewis, M. D., Horatio R. Storer, M. D., and George H. Bixby, M. D. Boston: Jas. Campbell.

This monthly, which is devoted to the advancement of the knowledge of the diseases of women, comes to us enlarged by an addition of 16 pages, which will

hereafter be devoted to a general summary of gynæcological literature throughout the world.

Western Medical Advance and Progress of Pharmacy. An illustrated quarterly Journal. Edited by W. H. Lathrop, A.M., M.D. Detroit, Mich.

Number 3 of this quarto publication is before us, containing, besides the advertisements, about 12 pages of reading matter, arranged under the following heads: General notes; new instruments; medical notes; surgical notes; editorial; publications received. It appears to be mainly devoted to advertisements, the limited space being hardly in accord with its title, although many of the items are judiciously selected. The chromo representing eight plants, more or less used in medicine, shows bright colors, but some of the figures bear little resemblance to the plants. This is especially true of *Colchicum autumnale* and its tuber.

Proceedings of the Vermont Pharmaceutical Association at the Second Annual Meeting, held at Rutland Oct. 11th, 1871. Also, Constitution, By-Laws, Roll of Members, &c. Rutland: Tuttle & Co., Printers. 1871. 8vo, 32 pages.

This Association, consisting of 40 members, appears to be in good working order, and the Proceedings show that the members are earnesty endeavoring to labor for the advancement of the profession. Five papers were read. Mr. A. O. Gates reported on *Valeriana officinalis* cultivated in Vermont, but without being able to furnish statistics. A comparative analysis of this and the European is very desirable. Mr. J. R. Cheney reported on the use of bicarbonate of soda and sulphuric acid for making soda water, with the view of utilizing the sulphate of soda formed. The reporter considers the value of the product as scarcely sufficient to warrant the expenditure of time and labor necessary for its recovery. Mr. E. C. Lewis reported on the course of reading necessary for the apothecary; Mr. W. H. Northrup, on the fineness of powders required for percolation; Mr. F. Dutcher, on indigenous drugs collected in Vermont, giving some curious facts, without succeeding in obtaining statistics.

Proceedings of the Second Annual Session of the State Medical Association of Arkansas, held at Little Rock Nov. 5th and 6th, 1871. 8vo, 39 pages.

Besides the President's address four papers were read at this meeting. The business, most important to apothecaries, transacted here is expressed in the following resolutions, offered by Dr. Ed. Cross, of Pulaski Co., and adopted:

Resolved, That it shall be of binding force and obligation on each and every member of this Society to withdraw all patronage and support from any apothecary or establishment where medicines are dispensed, on proof and evidence sufficiently clear and satisfactory that the proprietor or clerks employed therein, not being graduates in medicine are in the habit of assuming the responsibility and incurring the hazard and damage of prescribing supposed remedies and specifics without the written prescription or advice of a physician.

Resolved, That it shall be and is hereby the duty of the members of this Society to request the proprietors or pharmaceutists to whom they are in the habit of sending prescriptions to be made out or filled for the use and benefit of their patients, not to duplicate or refill the same under any circumstances without the written or verbal permission to do so, and, on neglect or refusing to

comply with such reasonable demands, it shall be the duty of any such aggrieved to withdraw his patronage and support (and immediately report the same to this Association) and give it to those who will alike better respect the proper rights of the profession and the greater good and safety of the public.

The first resolution is just to a certain extent, if interpreted in a liberal manner. We remember a valued friend of ours saying, in a meeting of pharmacists, some years ago, that he, in common with nearly all others present, had relieved many a sufferer from toothache without ever being taken to account for it by his neighbor dentist. No true pharmacist will undertake to act as physician, though he may be frequently called upon to alleviate the suffering of his fellow-man in the absence of a physician or in trivial or emergent cases.

About the subject of the second resolution we have repeatedly expressed our opinion and do not care to enter into it again. But we would respectfully suggest to this Association that in our opinion kind words and sound reasonings will be productive of more good than ever so many threats of vengeance.

Twelfth Annual Report of the Board of Directors and Officers of the Longview Asylum, to the Governor of the State of Ohio, for the year 1871. Cincinnati: Robert Clarke & Co., Printers: 1871. 8vo, 34 pages.

The report, which is embellished with an engraving of the Asylum and of the building set apart for colored persons, contains the usual information, financial and statistical. We learn from it that Dr. Langdon, for many years the efficient superintendent of this humane institution, has resigned his position, his place being now filled by Dr. J. T. Webb. It may perhaps interest our readers to know that of 2568 insane patients treated in this asylum during 11 years, 5 were druggists, 3 druggists' wives, 7 physicians and 6 physicians' wives.

The Physician's Annual for 1872. A complete calendar for the city and country practitioner. Edited by S. W. Butler, M.D., and Geo. H. Napheys, M.D. Philadelphia. Price 50 cents.

It contains a monthly calendar; lists of hospitals of the principal cities of the United States, of medical and pharmaceutical colleges, and of medical societies of the United States and Canada; printed catalogues of medical books and surgical instruments, &c., and much other information of interest to physicians and others. In the list of pharmaceutical colleges, those of Massachusetts and Maryland have been omitted, and the names of the Secretaries of others are incorrectly given.

The Chronic Hypertrophy of the Lips. By R. W. Taylor, M. D., Surgeon to the New York Dispensary, Department of Venereal and Skin Diseases. New York: Wm. Baldwin & Co. 8vo, 8 pages.

Reprinted from the "Medical World," Nov., 1871.

Public Ledger Almanac, 1872. Geo. W. Childs, publisher. Philadelphia. 56 pages.

The Tribune Almanac and Political Register for 1872. New York. 78 pages. Price, 20 cents.

These two almanacs, the former of which is not sold, but furnished to subscribers of the "Ledger" gratuitously, contain a great deal of information, the latter mainly political and statistical, the former more local and useful to the individual and to families.

EXCHANGES RECEIVED SINCE OUR LAST ISSUE.

American Chemist, December and January—American Journal of Science and Arts, January—American Journal of Medical Sciences, January—American Practitioner, January—Atlanta Medical and Surgical Journal, December—Archiv d. Pharmacie, November—Baltimore Med. Journ. and Bulletin, October—Bowdoin Scientific Review, ii., 21—Boston Journal of Chemstry, January—Boston Medical and Surgical Journal, viii., 26—Buffalo Medical and Surgical Journal, December—Canadian Pharmaceutical Journal, January—Chemical News, 629-632—Chemist and Druggist, December—Chemisches Central Blatt, 45-48—Chicago Medical Examiner, November to January—Cincinnati Lancet and Observer, January—Dental Cosmos, January—Dental Times, January—Druggists' Circular, January—Detroit Review of Medicine and Pharmacy, January—Eclectic Medical Journal, Cincinnati, January—Good Health, January—Georgia Medical Companion, December—Industrial Monthly, January—Journal of Applied Chemistry, vij., 1—Journal of Franklin Institute, December and January—Journal of Materia Medica, December—Journal of the Gynæcological Society, January—Journal de Pharmacie et de Chimie, November and December—Leavenworth Medical Herald and Journal of Pharmacy, January—Medical Press and Circular, 1713-1717—Medical and Surgical Reporter, xxv., 26. xxvi, 2—Medical News and Library, January—New York Medical Journal, January—Oregon Medical and Surgical Reporter, October—Pacific Medical and Surgical Journal, January—Pharmaceutical Journal and Transactions, 78-80—Pharmacist, iv, 11, 12—Pharmac Zeitung 1871, 66-86—Philadelphia Medical Times, 31, 32—Répertoire de Pharmacie, November—Richmond and Louisville Medical Journal, Jan.—St. Louis Medical and Surgical Journal, January—Virginia Clinical Record, January—Zeitschrift f. Chemie, 11, 12—Zeitschrift des Allg. Oesterr. Apotheker-Vereins, 32-34.

VOL. XLIV.] AMERICAN [NO. III.

JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] MARCH, 1872. [VOL. II, NO. III.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

TERMS OF ADVERTISING.

	One Year.	Six Months	Three Months.	One Ins'rt'n.
One page,	$90 00	$50 00	$30 00	$15 00
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Card,	20 00	15 00	10 00	5 0[illegible]

Small notices of four lines—half a column—per line, 25 cents. Special rates for Cover.

NOTICES.

The Annual Meeting of the Philadelphia College of Pharmacy will convene at the Hall, 145 North Tenth St., on Monday, March 25th, at 3 P. M. A numerous attendance is desired.

Election for Officers. CHARLES BULLOCK, *Secretary*.

The next Pharmaceutical meeting will be held at the College Hall, on TUESDAY, the 19th of March, at 3 o'clock P. M.

Members, students and others interested in Pharmacy are invited to attend, and to bring drugs, preparations or other objects of interest.

CLEMMONS PARRISH, *Registrar*.

TO MEMBERS OF THE PHILA. COLLEGE OF PHARMACY.

Members of the Philada. College of Pharmacy desiring reserved seats at the approaching Commencement, to take place at the Academy of Music, on Friday evening, March 15th, are requested to call for tickets at the store of Wm. C. Bakes, 1100 Arch Street, before March 12th, after which time all tickets not distributed will be given to the Class.

NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use. To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

WILLIAM PROCTER, JR., ALFRED B. TAYLOR,
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THE

AMERICAN JOURNAL OF PHARMACY.

MARCH, 1872.

ABIETENE A NEW HYDROCARBON.

By William Wenzell.

Read before the California Pharm. Soc., Dec. 13th, 1871.

This hydro-carbon is the product of distillation of the terebinthinate exudation of a coniferous tree indigenous to California, and is obtained from the *Pinus sabiniana*, Dougl., a tree inhabiting the dry sides of the foot hills of the Sierra Nevada mountains and the Coast Range, known more familiarly, however, by the name of Nut Pine or Digger Pine, names seemingly suggested by the edible quality of its fruit, upon which the Digger Indians chiefly rely as an article of food.

During winter the tree is notched and guttered at a convenient height from the ground, to receive the resin which then exudes, and when a sufficient quantity is thus obtained, it is carried to the stills for distillation. As this hydro-carbon is extremely volatile, and therefore much loss often sustained if the resinous exudation is kept long, distillation is usually commenced as soon as a sufficient quantity of the "gum" has been collected. The crude oil, as usually found in San Francisco, is a colorless, limpid fluid, and requires only to be distilled to obtain it quite pure. It occurs as an article of commerce, and has acquired, during the last eight or ten years, a considerable reputation under the names of abietene, erasine, aurantine, theoline, &c., for the removal of grease and paint from clothing, fabrics, &c.,—an efficient substitute for petroleum benzine.

In order to determine whether it was homogeneous in its composition, or composed of several hydro-carbons, seventeen fluid-ounces of the crude abietene were distilled fractionally, and the several distil-

lates of three ounces each separately collected. The first three ounces were obtained with the thermometer indicating 101° C., the second fraction indicated a thermometric rise of a quarter of a degree, and the thermometer rose with every succeeding fractional part until the fifth fraction indicated a boiling point of 104° C. With the sixth or last fraction the thermometer rose rapidly from 105° to 115° C., when at this point the distillation was discontinued. The remaining ounce presented a brownish red appearance, and left, on evaporation in a porcelain capsule, a small quantity of a solid resinous body. Each fractional part was found, on examination, to possess a boiling point of 101° C., showing the hydro-carbon abietene is a homogeneous liquid. Pure abietene presents a colorless, limpid liquid, possessing a strong penetrating odor, bearing some resemblance to oil of oranges. It is specifically lighter than water, turpentine, absolute alcohol, and ether, its specific gravity being 0·694 at a temperature of 16·5° C. It is very volatile and highly inflammable, burning with a brilliant white, smokeless flame. It is nearly insoluble in water; soluble in five parts by volume of 95 per cent. alcohol. When poured upon the hands, it evaporates rapidly, communicating the sensation of cold. Dry hydrochloric acid, passed through it for ten hours, did not react upon it. It dissolves iodine with the production of a rich purple color; bromine is also freely dissolved, forming an orange-colored solution. Nitric acid of sp. gr. 1·43 added to abietene occasioned no reaction in the cold, but when the mixture was heated to boiling, a moderate reaction was established with the disengagement of nitrous acid fumes. Concentrated sulphuric acid exerted no reaction whatever, either in the cold or on heating; metallic potassium was not acted upon. On passing dry chlorine into abietene this gas was abundantly absorbed, with the evolution of hydrochloric acid gas, an increase of volume and density, accompanied by a rise of temperature. On saturating abietene with chlorine, assisting towards the end with a gentle heat, a thick liquid resulted, which, when heated on a water-bath to remove some hydrochloric acid held in solution, was found to possess the consistency of glycerin, sp. gr., 1·666, to be colorless, insoluble in water, but soluble in warm alcohol, and possessing a taste resembling balsam of fir.

In comparing abietene with terebene (spirits of turpentine), the hydrocarbon obtained from other species of the pine family, the *Pinus palustris*, *Pinus sylvestris*, etc., some very striking differences are observed in their physical and chemical properties. Particularly noticeable is the

remarkably low sp. grav. of abietene, which is only 0·694 at 16·5° C.; that of terebene being 0·840, at about the same temperature; again the boiling point of abietene is 101° C. while oil of turpentine boils at 160° C. Terebene absorbs hydrochloric acid with avidity, forming hydrochlorate, while abietene resists the prolonged action of this gas at ordinary temperatures. Nitric acid acts violently upon terebene, while, on the other hand, with abietene no action was instituted, and it was only by the application of heat that a quiet evolution of nitrous gas was observed. The action of chlorine upon abietene seems to furnish a true substitution product, the hydrogen of the hydro-carbon being largely replaced by chlorine, sufficient to raise the spec. grav. of the liquid from 0·694 to 1·666. When this substitution compound was subjected to distillation, at a temperature of 256–260° C., hydro-chloric acid was given off abundantly, with subsequent blackening and the disengagement of pyrogenous products, leaving, finally, a carbonaceous residue.

Abietene is a powerful solvent for the fixed and volatile oils, with the exception of castor oil, which is absolutely insoluble in abietene; while, on the other hand, castor oil is capable of dissolving nearly two-thirds of its volume of the hydro-carbon.

Abietene dissolves balsam of capaiba freely and in all proportions. Canada balsam is dissolved in all proportions up to two parts of abietene, an excess of the latter precipitating the resinous principle of the balsam entirely as a white flocculent precipitate, the volatile oil being retained in solution. Balsam of Peru requires about one-fifth of its volume of abietene to form a clear solution, but if a quantity greater than this is added a turbid mixture will result, which, on repose, will allow the excess of abietene to rise to the surface. It will be seen at a glance, from these data, that, although abietene possesses the properties of a general solvent for fixed and volatile oils in every proportion, it yet is incapable of dissolving castor oil, balsam of Peru, and Canada balsam, which in their turn exert a solvent action upon abietene.

When abietene is burned in an alcohol lamp, with flame not too large, a brilliant white light is obtained, without smoking. Its vapor is powerfully anæsthetic when inhaled, and it has been used with success as an insecticide against moths, &c., when sprinkled in closed receptacles. Castor oil mixed purposely with other fixed oils, and the mixture then shaken with four times its volume of abietene, the castor oil will be found to separate and collect at the bottom of the mixture,

forming a distinct layer, consisting of one volume of castor oil and two-thirds of a volume of abietene, so that by this means sophistications of castor oil with other fixed oils may be easily detected and quantitatively determined.

BROMIDE OF CALCIUM.

By James R. Mercein.

The good effects experienced by Prof. W. A. Hammond and other well-known physicians, in the substitution of bromide of calcium for bromide of potassium as a sedative and hypnotic, have brought this salt into somewhat prominent notice during the past year. The fact that its wholesale price seemed to be exorbitant in proportion to the cost of the ingredients, first induced me to try and make it for myself. A thorough search in nearly a dozen works on chemistry gave me no clue whatever, only one or two authors giving the name even. In Miller's Chemistry, however, and in Watt's Dictionary of Chemistry, there is a general description, but nothing to serve as a working formula. But after various trials I have succeeded in making the salt to my satisfaction, and herewith give the *modus operandi* for the benefit of others.

Five ounces of bromine and two and a half pints of water were put together in a half gallon specie jar. A stream of sulphuretted hydrogen was then passed slowly into this, care being taken to place the end of the delivery tube so as to touch the surface of the bromine. This was continued until the bromine was all taken up, and the resulting liquid was of a muddy yellow color with a copious deposit of sulphur. It was then filtered, transferred to a capsule and gently warmed, to drive off any trace of S^2O^5, and again filtered. The result was a strong solution of hydrobromic acid, specific gravity 13°. In order to free this from any possible impurity, it was distilled by a sand-bath heat until four-fifths had passed over. It was then saturated with precipitated carbonate of lime, which was added in slight excess, so that even after applying a gentle heat, a slight quantity remained undissolved. This solution of bromide of calcium was filtered, evaporated by a water-bath to a syrupy consistence, then removed from the fire and stirred until it cooled. The result was six ounces of bromide of calcium in fine, granular powder, possessing every characteristic of the salt, and freely soluble in twice its weight

of water, leaving a mere trace of residuum upon the filter. Here comes in the practical part of the operation. This salt, perfectly free from uncombined lime, such as was found in the commercial article, was made for about one-fifth of the market price.

Jersey City, N. J., Feb., 1872.

CHALK MIXTURE.

By Geo. W. Kennedy.

Mistura cretæ of our pharmacopœia is a remedy frequently prescribed by our physicians for diarrhœa and summer complaints of children, and yet it is very objectionable, owing to its becoming sour, especially during the summer season, that being the time when mostly prescribed. It is surprising how rapidly it ferments, the supernatant liquid becoming sour and mouldy; of course there is no necessity to dispense a fermented preparation, when it may be made up fresh every time when wanted, and yet how very inconvenient it is at times to prepare it as called for, especially if several customers are waiting in the store, and most likely all of them having prescriptions to be filled, each one desiring to be waited on first.

In order to see what was sold in some of our shops as chalk mixture, I purchased some from twelve different stores; three of the samples proved to be in perfectly good condition, eight partially sour and one quite sour; two of the first were from stores kept by graduates in pharmacy, the rest were not.

By way of experiment in order to obviate this great inconvenience I tried the substitution of glycerin for sugar, and so far, up to the present time, I have found it to work well after the following formula:

℞.	Cretæ Præpt.	
	Glycerinæ (Bowers')	*aa* ℥ss.
	Pulv. acaciæ	ʒij.
	Olei Cinnamomi	gtt. viij.
	Aquæ Destill.	℥viij.

Mix thoroughly.

The above mixture I have kept a whole summer and up to the present time; I made it about ten months ago, and upon opening it I found it in perfect condition, not even the slightest acidification having taken place.

The above process is not used for dispensing chalk mixture in my shop, but was only tried by way of experiment, to see if it would keep during the hot summer months from decomposition.

The following formula has been used by me for some time back:

℞.	Cretæ Præpt.	℥ss.
	Sacchari albi	
	Pulv. acaciæ *aa*	ʒij.
	Olei Cinnamomi	gtt viij.

Mix intimately.

For every fluid-ounce of chalk mixture I take one drachm of the mixed powders, and rub them well up with an ounce of distilled water, and of course the mixture is free from acidity. In cases of diarrhœa in children, which generally is the result of fermentation, the glycerin formula seems to be preferable to the one containing sugar, the former mixture being and remaining bland, nutritious and with soothing effect on the bowels; to a certain extent it arrests fermentation, and the glycerin fully protects the gum from decomposition.

Pottsville, Pa., Feb., 1872.

FLUID EXTRACT OF CUNDURANGO BARK.

By Samuel Campbell.

The attention of the Medical and Pharmaceutical professions is now attracted to this drug by the many rumors concerning the wonderful cures effected by its use in the treatment of cancer, syphilis, and kindred diseases, and there is no doubt that many have been deterred from giving it a trial on account of the exorbitant prices charged for it, (altogether speculative), varying from one hundred dollars down to nine dollars per pound. And the glaring inconsistency of difference in price between the commercial *fluid extract* and the drug in substance, the former quoted at *ten dollars* a pint, (representing one pound of the bark), and the latter at eighteen dollars per pound, has induced me to submit the following formula as the result of a series of experiments whereby retail pharmaceutists may prepare and thereby furnish a reliable preparation to their medical patrons, and aid in designating the true therapeutical value, (if it has any), of this drug. The bark was purchased from the well-known firm of McKesson & Robbins, of New York City, in its crude state, and ground under my own supervision, hence its reliability cannot be questioned. The formula is as follows:

Cundurango Bark,	24 troy-ounces.
Alcohol, (95 per ct.)	12 fluid "
Glycerin, (Bower's inodorous),	6 " "
Water,	6 " "

Reduce the bark to a moderately coarse powder (No. 40), and dampen with four fluid-ounces of menstruum. Place a piece of coarse sponge, previously moistened, in the bottom of the percolator, and proceed to pack the dampened powder uniformly and moderately tight. Place a paper or muslin diaphragm over the surface of the drug and pour on the remainder of the menstruum; cover over percolator and allow to macerate four days. If the menstruum should begin to pass through before that period, check it by placing a cork in the neck of the percolator. On the fifth day remove the cork and pour on 24 fluid-ounces of dilute alcohol, and allow to percolate until 22 fluid-ounces are obtained. Set aside and continue the percolation until 8 fluid-ounces more pass through. Expose this in a shallow vessel in a warm place until reduced to two fluid-ounces, then mix and agitate with the original percolate of 22 ounces, when the result will be a fluid extract of a very dark reddish brown color, fully representing the drug, possessing an acrid taste, yet devoid of bitterness.

I have also deemed it interesting to itemize the amount of extractive matter contained in the drug, and pursued the following method for obtaining a sufficiently practical result:

24 fluid-ounces of menstruum weighs	21¼ troy-ounces.
24 " " fluid extract, when finished, weighs	24¾ troy-ounces.

The dregs in the percolator was afterwards entirely exhausted with dilute alcohol, (requiring about 2 pints), and then carefully evaporated, yielding an extract weighing three drachms, thus proving that 24 troy-ounces of the bark contains 3½ troy-ounces of soluble extractive matter.

Philadelphia, January 22d, 1872.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Oils of Peppermint and Alcohol.—Hager substantiates his criticism of Puscher's method for the detection of alcohol in volatile oils by means of fuchsin, by a somewhat oxidized oil of peppermint, which

dissolved fuchsin, although Hager's test by tannin proved the total absence of alcohol. He states, however, that the addition of one-half per cent. of alcohol to the volatile oil will preserve it from oxidation for a ten times longer period than without such addition; the oil of crisped mint is preserved in like manner. Ten to fifteen drops of the oil of peppermint containing this addition, and put into a dry test tube, a piece of tannin of the size of a pea is added, slightly agitated and set aside for one hour and a half; the tannin will remain unaltered unless a larger quantity of alcohol has been added, when it will be soft or dissolved; one-half per cent. of alcohol is not indicated by this test in less than two or three hours. The author considers this addition as necessary and justifiable, as the addition of a small quantity of alcohol to absolute chloroform to preserve it from decomposition.*—*Pharm. Centr. Halle*, 1871, 465—466.

Carbolic acid Paper.—C. Homburg, of Berlin, has introduced, for disinfecting purposes, a paste board saturated with crude carbolic acid, so that each square foot contains 100 grammes. The atmosphere may be impregnated with the acid by suspending a suitable sheet in the rooms, the large surface of the paper favoring evaporation. For the disinfection of spittoons, urinals, bed-pans and the like small pieces of the paper are sufficient. The article is sold retail in sheets measuring about seven square feet, at twenty-five cents.—*Ibid, p.* 471.

Oleoresina Filicis Maris.—To prevent the deposition of a precipitate in this oleoresin, Hager recommends to dry the powered rhizome completely over burned lime and to employ anhydrous ether, containing but little alcohol of a specific gravity below 0·728. With an ether of 0·723 specific gravity and a completely dehydrated powder, which is best exhausted in a cylindrical percolator, the oleoresin remains perfectly clear.—*Ibid*, 457.

Solution of Subacetate of Alumina is a mild astringent, and has been used for some years as a local application for suppurating wounds and ulcers, in gleet, some eruptions, intertrigo, &c. Hager gives the following directions for its preparation:

35 parts crystallized acetate of lead, 10 parts litharge and 33 parts water are heated until the sediment has become white; when cold, 100 parts water are added and the whole well agitated. A solu-

* See also Amer. Journ. Pharm., 1871, p. 201.

tion of 31 parts crystallized sulphate of alumina in 180 parts cold water is added, repeatedly agitated and, after settling in a cool place, filtered. A little sulphuretted hydrogen is passed through the filtrate to remove traces of lead remaining dissolved in the alumina solution, and the sulphuric acid is precipitated by a little acetate of baryta; the sulphate of baryta remains in suspension for a long time, but is easily removed by agitation of the liquid with five parts purified animal charcoal and filtering. The filtrate has a specific gravity of 1·025 to 1·026, and contains 5 per cent. of the salt.

This solution may be mixed and even heated to boiling with five times its volume of 90 per cent. alcohol without becoming turbid, but gelatinizes with tannin solution.—*Ibid.*, 473—476.

Ozonized water, which has been repeatedly branded by Hager as a swindle, has been examined by Prof. Boettger (Ph. Cent. Halle, 1871, 489), who found it to contain a little nitrous acid, and by Dr. Albert Kremer (Ibid., 1872, 2) who found a sample to contain a trace of binoxide of hydrogen, but no ozone.

New test for Alcohol.—Berthelot observes that benzoyle chloride $C_{14}H_5ClO_2$ is not readily decomposed by cold or lukewarm water; if, however, alcohol is present, benzoic ether is at once formed which dissolves in the excess of benzoyle chloride; a drop of the latter, if now heated with potassa solution, dissolves readily, while the ether is not acted upon. The reaction is very evident if 20 or 25 c. c. of water are used containing only 1 per cent. of alcohol. But even with a few c. c. of water containing only one thousandth of alcohol, the odor of the ether is still very manifest.—*Répertoire de Pharm.*, 1871, *Nov.*, 178.

To distinguish Grape- from Fruit-Wine.—Neues Jahrbuch für Pharmacie xxxvi. p. 314–322, contains an interesting communication, signed "M.," in which it is stated that fruit-wines (of apples and pears) contain phosphoric acid combined with lime, while grape-wines (from the Neckar river) contain phosphoric acid in combination with magnesia. If the filtered liquids are supersaturated with ammonia, distinct granular crystals will form from cider on the side of the glass cylinder after some hours, while the precipitate from grape wine is pulverulent to the eye but crystalline under the microscope. Both precipitates dissolve in dilute acetic acid; the solution of the cider precipitate separates, upon the addition of oxalate of ammonia, oxalate

of lime, and then yields with ammonia and sulphate of magnesia a precipitate of ammonio-phosphate of magnesia. The solution of the grape-wine precipitate separates by an oxalate a little oxalate of lime, and then precipitates, on supersaturation with ammonia, all the phosphoric acid as magnesia salt, so that a solution of magnesia will not disturb the clear liquid. One litre cider (from pears) yielded 0·369 PO_5, the same quantity of Neckar wine 0·366 PO_5. The author found also that his grape-wines naturally contain malic acid. One litre Malaga wine yielded 0·640 PO_5. Further experiments with fruit- and grape-wines of an undoubted purity are very desirable.

Pure Soda hydrate by Crystallization.—This process, proposed by O. Hermes, has been tried by Klas Lindroth, who observed that a very impure solution of soda of specific gravity 1·215 would not crystallize at a temperature of —22° C. (—17° F.), but crystallized readily after concentration to 1·375 spec. grav. After draining the crystals in a well-covered glass funnel, they were found to contain mere traces of carbonate and chloride.—*N. Jahrb. f. Pharm.*, 1871, *from Upsala Läkareför. Forhandl.*

A new delicate test for Ammonia has been observed by Lex. Liquids containing minute quantities of ammonia assume a green color when treated with carbolic acid and afterwards with chlorinated lime.—*Ibid., frvm D. Indust. Ztg.*

Collodium Cotton and Creasote.—According to Wirth, collodium cotton yields with beechwood tar-creasote a clear liquid, which, at first thick, soon becomes limpid and homogeneous. Coal tar-creasote yields, after continued agitation with the cotton, a gelatinous and, for the greater part, consistent mass.—*Ibid., from Pharm. Ztg.*

Testing Balsam of Peru.—This balsam has a specific gravity of 1·140 to 1·160, and therefore sinks if added to a solution of one part of table salt in four of water, which has a specific gravity of 1·125. The addition of even a small quantity of a fixed oil to balsam of Peru renders it lighter.—*Ibid., from Apoth. Ztg.*

Galega officinalis, for improving the secretion of milk, was recommended by Gilles and Langenhagen. Dr. Oeffinger has used it in the form of syrup with good success, and reports that not only the quantity of the milk is increased, but that it is likewise improved in quality. In one case the milk consisted before the treatment of 92·4

water, 3·8 sugar, 1·9 butter, 2·7 casein and 0·1 salts. On the second day after commencing to use galega, it was composed of 90·2 water, 4·4 sugar, 2·3 butter, 3·6 casein and 0·1 salts.—*Ibid., from Aerztl. Mitth. a. Baden.*

Rudbeckia laciniata, Lin., in Europe.—An interesting history of the introduction of this North American plant into Europe, is given by A. Kerner, in *Zeitschr. d. allg. œsterr. Apoth. Ver.*, 1871, No. 35. It appears that it was received and cultivated at Paris by Vesp. Robin in the beginning of the seventeenth century, and in the beginning of the following century was used as an ornamental plant in many parts of Europe. It is now found wild in many parts of Northern and Eastern Germany, Austria, Hungary and Switzerland.

Test solutions for Grape-sugar.—Julius Lœwe recommended, in 1870, a solution of oxide of copper, soda and glycerin, which he reports to be entirely unaltered, after having been kept for about eighteen months in the dark and in diffused daylight. 15·305 grm. hydrated oxide of copper (equal to 40 grm. pure crystallized copper sulphate), 30 grm. glycerin, 80 c. c. soda solution, sp. gr. 1·34, and 1·60 c. c. water are heated with 160 c. c. water in a water-bath until solution is effected, when it is diluted to 1155 c.c., 10 c.c. of which are equivalent to 0·050 grm. anhydrous grape sugar; the solution is not decomposed by boiling.

The author has also modified Bœttger's reagent so as to obtain a permanent solution of bismuth, as follows: 15 grm. subnitrate of bismuth, 30 grm. glycerin, 60 to 70 c.c. soda solution, sp. gr. 1·34, and 150 to 160 c.c. water yield, on heating in a water-bath, a clear solution, which may be diluted to 700 or 800 c.c. without producing a deposit.—*Zeitschr. f. anal. Chem.*, 1871, 452.

NOTES ON PAREIRA.

By Edward R. Squibb, M. D.

Pareira Brava is a drug which has withstood the mutations of therapeutics and commerce for nearly two hundred years, and it is a singular and significant fact, in view of its commercial history, that it has sustained a sound reputation with many critical observers.

It appears to have been introduced to European practice from Portugal, but its sources were Mexico, tropical South America, and the West Indies. Under a name so indefinite as "wild vine," or "bas-

tard vine,"—the translation of the name Pareira Brava,—it is hardly possible that the markets should have always been supplied from the same plant, even after its botanical source was determined, and hence the varying descriptions of different authorities may be accounted for. The writer has been familiar with it, both in its use and in its market character, for more than twenty-five years, and for the last half of this period supposed he knew the substance with some degree of accuracy, as its appearance was more uniform than that of most drugs. It, however, never had more than a very general agreement with any of the descriptions given of it; and the almost universal testimony of those physicians who knew it best was, that although very efficient in the treatment of chronic diseases of the mucous membranes of the urinary passages, it was only useful when given in doses very much larger than those prescribed by the books.

It has so happened, that in the New York market the trade in this drug has been largely, though not exclusively, confined to one drug house, and its appearance, as met with here, is identical with occasional samples seen from other cities. Some ten years ago, the annual sales did not exceed three or four hundred pounds, and the price was fifteen to twenty cents. A Portuguese merchant, stimulated by this high price, imported a lot of some ten thousand pounds, and unable to sell it except in small lots at the expected prices, stored it for a year or two. This was found to be expensive management of so bulky an article, and the lot was finally sold at eight cents, and supplied the market for years. Another lot of about half as much shared the same fate, and fell into the same hands. The fate of these two lots and the glut of the market seems to have stopped importation entirely, and by 1871, when the annual sales had reached three to four thousand pounds, the supply became exhausted. In resorting to foreign markets it was found scarce, and to be had only in small lots, and these, on arriving here, were held at seventy-five cents to a dollar a pound. In looking critically through one of these small lots as a purchaser, the writer was surprised to find nearly one-half of it so entirely different from any hitherto seen, that he rejected it, and at once pronounced it a fraudulent adulteration or substitution, made in the interest of the scarcity and high price, and carefully selected out for purchase that only which he had seen before. Some specimens of this supposed fraudulent pareira were, however, taken for examination, and were found to agree well with some of the older descriptions. A

plate given by Pomet in his History of Drugs, published in 1737, and a close examination of the structure, &c., convinced the writer that this was the true pareira root, and that what he had heretofore seen was the stem.

In a critical review of the descriptions of Wood and Bache, and Pareira, these descriptions were found to apply to both, as nearly as such descriptions generally do to foreign drugs, but that they applied much better to the ligneous woody stem, which is comparatively insipid and probably inert. The root is very much darker, almost black externally, and both the annular and vertical wrinkles are very much larger and more prominent. It occurs in shorter sections than the stem, and knarled pieces are found eight inches to a foot in diameter. The texture is far less compact than that of the stem, while the beautiful arrangement of the consecutive rings seen in a cross section, which requires a glass in the compact stem, is well seen with the naked eye in the root. The sweetish and afterward bitter taste of the woody stem is very feeble, and even when in the finest powder, it yields very little extract to any menstruum. The taste of the root is, however, very much stronger, and yields at least twice as much extractive matter to the menstrua. Specimens illustrate the difference between the root and stem much better than any description, and will render further explanation unnecessary.

It thus appears that, for some twelve or fifteen years past, this market has been supplied with the comparatively inert stem, instead of the root of pareira; and that the ideas of at least one careful purchaser had become so fixed upon the intractable woody stems, that when the roots did appear, they were very nearly rejected as a fraudulent substitution. The importations of this year thus far have come from the European markets in small lots, and have been a mixture of root and stem, but less of the root than stem, and the chief object of this note is to attract attention to the drug, and create such a demand for the proper root portion, that after the present scarcity is over, and the market comes to be again supplied direct, the stem may be rejected.

There is no doubt whatever as to the peculiar efficacy and utility of this drug within its legitimate sphere in therapeutics, and the wonder is that it has been able to sustain its well-tried and time-honored reputation upon the feeble medicinal properties of the stem.—*Proceedings of the Amer. Phar. Assoc.* 1871.

Brooklyn, Sept., 1871.

ON THE SO-CALLED AFRICAN SAFFRON.

By Prof. John M. Maisch.

Nearly a year ago, my friend A. E. Ebert sent me a sample of what had been offered in Chicago under the name of African saffron, and was in the hands of an agent of a New York house. I also procured from Breithaupt & Wilson, New York, a sample under the same name, and found the Chicago and New York so-called African saffron alike, namely, to be the florets of Carthamus tinctorius, Cir., the well-known safflower or dyer's saffron, but more broken than what we usually see under this name and that of American saffron; it is likewise more discolored. This plant is originally indigenous to the East Indies, but is very extensively cultivated in Western Asia, Southern Europe, and Northern Africa, particularly Egypt. Whether this so-called African saffron was really imported from Africa or not, I have no means to ascertain; but it is not improbable that, with the staple drugs regularly shipped from Alexandria, Egypt, this lot of carthamus may have likewise been exported in consequence of the failing supply from Europe and other places.

Through the kindness of Messrs. McKesson & Robbins, New York, I obtained three samples of so-called African saffron, two of which likewise proved to be carthamus; one of these samples was on hand in New York, and offered at $3.50 per pound; the other, the better quality as far as could be judged from the small samples, was, previous to its arrival, offered at 75 cents per pound.

The third of these samples, representing thirty pounds, held in London, England, and for which offers were solicited, was *not* carthamus; it consists of the corolla of a plant probably belonging to the natural order *Scrophulariaceæ*, which in their dried condition are of a dirty greenish brown color; they are about one inch long, the tube being about one-tenth inch in diameter, and three-quarter inch in length, inflated in the throat and smooth, the limb somewhat bilabiate, one sterile stamen, with the filament nearly free, the fertile stamens didynamous. Infused in cold water they impart an intense yellow color to it. The total absence of calyx, ovary, and even style, renders it impossible to express an opinion as to the genus from which this so-called saffron may have been derived. It is unquestionably a new claimant for public favor as a dye-stuff, its unsightly appearance probably interfering with its successful introduction. It is too dark colored and too coarse in its structure to be used as a sophistication of, or substitution for, true saffron.

As far as my experience extends, the article which last winter (1870–71) was in the American market under the name of African saffron, was carthamus, while about the same time a small lot of (probably) scrophulariaceous flowers were offered in the London market under the same name.—*Proceedings of the Amer. Pharm. Assoc.*, 1877.

PREPARATION OF ABSOLUTE ALCOHOL.

By E. Erlenmeyer.

The processes mostly in use for the preparation of *larger quantities* of absolute alcohol are very tedious, because the dehydrating agents, like carbonate of potassa, anhydrous sulphate of copper, anhydrous ferrocyanide of potassium, burned lime, caustic baryta, &c., combine with the water only after prolonged contact. The three first-named substances do not yield perfectly absolute alcohol even after several days' contact and frequent agitation.

Mendelejeff,* in his valuable researches on the combinations of alcohol with water, has carefully investigated the various agents for the production of absolute alcohol, and prefers caustic lime to all others. He employs alcohol having a specific gravity not higher than 0·792, at 20° C., and pieces of burned lime projecting above the surface, when the alcohol will be dehydrated in two days; but, if the distillation is desirable after 2 or 3 hours, he directs the two articles to be previously heated, for half an hour, to 50 or 60° C. With this manipulation, however, only the middle portions of the distillate are obtained anhydrous.

I have altered Mendelejeff's directions, so as to boil upon the water bath, for one-half to one hour, in a still connected with a return cooler; afterwards the cooler is reversed and the alcohol distilled, when the entire distillate is obtained in the anhydrous condition. If the alcohol contains over 5 per cent. of water, it is merely requisite to subject it twice or three times to the same treatment. Should it contain much water, then the lime must not, on the first boiling, project above the surface of the alcohol. It is better to fill only half of the space occupied by the latter, with pieces of lime, otherwise its rapid hydration endangers the safety of the still. Several litres of spirit may by this method be converted into absolute alcohol within a few hours.—*Annal. der Chem. und Pharm.*, 1871, *Nov.*, 249.

* Zeitschr. f. Chemie, 1865, 260.

ON POWDERED CAMPHOR.

By John C. Lowd.

Query 2.—How may Camphor be reduced to a fine powder, and retained in the pulverulent condition?

The query on this subject having been referred to the writer, he hereby submits to your honorable body the result of an experiment.

The various methods for reducing camphor to a fine powder, suggested by different writers, are singularly deficient. The objections are the expense and incomplete results, through the moist condition of the powder when precipitated from an alcoholic solution, rendering it unavailable for the purposes for which it is largely employed in the manufacture of errhines, tooth powders, &c.

Camphor possesses the advantageous property of resublimation without losing any of its valuable qualities. This furnishes a suggestive hint capable of being carried out in the preparation of a fine powder. The method I have tried with complete success, consists in vaporizing the camphor from a retort into a large chamber, and its collection in the form of a fine dry powder.

The apparatus used consists of a four-wick lamp, containing one pint of alcohol; a copper retort four inches diameter by ten inches high, having a curved neck fourteen inches long and two inches diameter; a chamber or receiver made of strong paper, rendered impervious by any suitable sizing. The paper is stretched upon a light frame of wood, so as to form a cubical chamber of three feet in length, breadth, and height, with an aperture on one side within a foot of the top, in order to receive the neck of the retort. Care must be taken to lute around the joint where the retort connects with the receiver on account of the imflammability of the vapor. The quantity used is one pound of camphor, and the time required to sublime it about thirty minutes.

The advantages of this process are its availability and economy, the perfect condition of the powder as to its purity, dryness, and degree of fineness. It will retain its pulverulent condition if kept in full bottles, well worked, in a cool place.—*Proceedings of the Amer. Phar. Assoc.*, 1871.

Boston, Mass.

MUCILAGE OF ACACIA.

By R. Rother.

Mucilage of gum arabic prepared by the officinal method is remarkable for its instability; only a few days, and under peculiar conditions a few hours, sufficing to render it sour and consequently unfit for medicinal use. Mucilage for medicinal purposes is an article of great utility to the pharmaceutist in the making of pills, emulsions, and other mixtures with which gum is prescribed. For these purposes it is always far superior to the powdered gum. But on every occasion it should either be quite recently prepared or otherwise preserved from change. The moderately circumstantial and rather tedious operation of dissolving the gum when in the original pieces debars the possibility of an expeditious process for extemporaneous application. In view of these facts, the addition of the least objectionable preservative can only meet with approval. Glycerin has been recommended and used for nearly everything, and there exists not the slightest doubt but that it enters largely into pharmaceutical productions. Now while glycerin may be positively injurious in some cases, it has become actually indispensable for others. Too frequently it is introduced where there is no cause for its presence, and often where its influence would be beneficial, the proportion was not sufficient to be effective.

The decomposition of mucilage of acacia when once begun cannot be checked or even retarded with glycerin, but can be prevented by a sufficiency of glycerin, if this be present before any change could supervene. This is only secured by mixing the glycerin with the water before its addition to the gum. Next important to the solvent is the manner in which the solution of the gum is effected. This operation can be most promptly and thoroughly performed by placing the original pieces of the gum into an appropriately sized bottle, and adding the mixture of glycerin and water. The bottle is then securely corked, the whole well shaken, and the bottle laid down on its side in a horizontal position; after 10 or 15 minutes the layer of agglutinated gum is moved into a vertical position by revolving the bottle; after the column has subsided, the bottle is farther revolved in the same direction. Having thus moved the bottle three or four times during the interval of about twelve hours, complete solution has taken place. The mucilage is now well shaken and strained through muslin. The straining can be very rapidly done by placing a proportionately large sheet of

moistened muslin over a funnel supported on a bottle; the funnel is then filled with the liquid, two opposite sides of the strainer folded together and the ends twisted in opposite directions. When all the liquid has been forced out, a fresh portion is similarly treated until all has been strained. The proportion of the glycerin to be used is one in eight of the product. The following formula is in officinal proportions, only that eight ounces of water is replaced with an equal measure of glycerin; one fluid-ounce contains three drachms of acacia, and one fluid drachm of glycerin:

Take of Acacia, in pieces, 24 troy-ounces.
Glycerin, 8 fluid-ounces.
Water $2\frac{1}{2}$ pints.

Mix and conduct the process as above directed.—*Pharmacist and Chemical Record, Jan.*, 1872.

SACCHARATED COD-LIVER OIL.

M. Tissier, in the November part of the *Journal de Pharmacie et de Chimie*, publishes a method for preparing a granulated saccharate of cod-liver oil, for which he claims several advantages, and which may be flavored by orange, vanilla, etc. The ingredients are as follows:—

White Gelatine,	4	grms.
Distilled Water,	25	"
Simple Syrup,	25	"
Finely Powdered Sugar,	50	"
Pure Cod-Liver Oil,	50	"

The gelatine should be cut and placed in a wide-mouthed bottle; the water and syrup added, and the whole heated in a water-bath until dissolved. The cod-liver oil and the sugar should next be well rubbed up together in a mortar and then the warm solution of gelatine stirred in, the stirring being continued until the mixture is quite cold.

After some time the mass will present the appearance of a dense homogeneous jelly; it is then necessary to add a sufficient quantity of finely-powdered sugar to form a firm paste, weighing 250 grms. The paste is spread upon a marble slab, divided into small pieces and left for some hours to harden. It is then divided into small pieces the size of a lentil, which, after further drying, become sufficiently firm to allow of granulation in a mortar. The drying of this granu-

lated powder is accomplished on a stove at a temperature of 30° to 35° C. The product will contain one-fifth of its weight of cod-liver oil. It should be kept in well-closed bottles.—*Pharm. Journal and Transactions, Jan.* 20, 1872.

ON THE ABSORPTION OF BLUE OINTMENT AND OF SUBLIMATE BY THE UNWOUNDED SKIN.

A microscopico-chemical study has appeared by Professor Dr. Neumann, which is very interesting. He says there are five questions to answer to:—

1. Does mercury, rubbed into the unwounded skin, penetrate through it into the organism?

2. What are the ways by which mercury enters the body?

3. Can the *hypothesis* (that mercury enters the body in the form of metal, and that it circulates in that form in the blood) be proved by the microscope?

4. Can the mercury rubbed into the skin be found in the interior organs chemically or microscopically?

5. Is corrosive sublimate, dissolved in a bath, received by the unwounded skin?

Dr. Neumann asserts that the known physical properties of the globules of mercury in blue ointment are only appreciated under a certain limit, beyond which limit even the best microscopist can no longer make a difference between globules of mercury and bubbles of air, molecular grease, molecular detritus, microconus, carbonate of lime.

That question can only be resolved by combined method:—

a. First the entering of the globules must be proved.

b. Then their presence in the blood and in the organs must be searched for chemically.

The best method for that is Professor Schneider's, who makes an amalgam by small leaves of gold, and by the mercury excreted from the body, when a metallic mirror is created; then by combination with vapours of iodine, the iodide of mercury appears by its characteristic color and crystals.

Experiments have been made on dogs, rabbits, frogs, on the skin of new-born children, and on living men, and on those parts of the body which were destined for amputation; then on bladders and pericardium.

In order to *prevent* on living animals the *licking* off of the rubbed parts, bandages were applied, also the injection with curare was made after long rubbing, or with a solution of chloral, after which experiment the animal lives still some hours (27 hours—4 hours). But the skin should not be excoriated by rubbing. Gold coins were also interpolated in the subcutaneous tissue, and in the cavity of the chest and abdomen to detect the amalgamation.

The *opinion* that the mercury enters into the apparatus of breathing during the rubbing is refuted by the proof that mercury changes into vapor only by high temperature. Other *physiologists* object that very thin molecules of mercury which are suspended in the air may enter in the body by the mouth. Dr. Neumann refutes this opinion by the following experiments. He separates the head and the anterior part of the body by a correspondent aperture in the window, from the atmosphere in which the inunction takes place, so that no particle of mercury could be breathed. Of those experiments the results were the following:—By rubbing the blue ointment in the unwounded skin, globules of mercury enter by the air follicles as far as the bulb in the sebaceous glands, which have an open aperture, and then they enter in the superior part of the sudoriferous glands. But Dr. Neumann could not find what direction the globules take from there till the apparatus of circulation, and in what form; probably they are changed into sublimate, and are resolved by the superficial lymphatic system.

On the contrary, the rubbed mercury as blue ointment can in the blood, and in the interior organs only be found by chemical methods, also the sublimate when it is received by the unwounded skin.

Globules of mercury could never be found in the subcutaneous tissue and in the cutis vera.—*Med. Press and Circular, Dec.* 13, 1871.

A METHOD FOR THE ESTIMATION OF MORPHIA IN OPIUM.

By John T. Miller.

The author, in endeavoring to make use of the liberation of iodine from iodic acid by morphia, for the estimation of this alkaloid in opium, obtained at first unsatisfactory results, to clear up the causes of which numerous experiments were tried, only a few of which need be mentioned:

1. Some *narcotine* was added to the standard morphia solution,

then iodic acid, and after the mixture had stood a few minutes it was shaken with carbon disulphide. The feeble color of the latter showed plainly that it contained less than the usual quantity of iodine.

2. The experiment was repeated, but with this difference, viz., the shaking with carbon disulphide was performed immediately after adding the iodic acid. The full color was now obtained, the liberated iodine having been seized by the disulphide before the secondary reaction could take place.

3. Similar experiments were tried with *codeine*, the invariable result being a diminution in the amount of iodine set free.

4. *Thebaine* was found to act in the same direction as codeine.

5. Iodine water, when added to a slightly acid solution of *papaverine*, produces a red-brown precipitate, which gives with chloroform a yellow or brown solution; but carbon disulphide abstracts the iodine from the compound and liberates the papaverine. The presence of the latter in the sample solution is, therefore, of no consequence.

6. Though solution of *narceine* does not reduce iodic acid, yet after being heated with lime or potash it has that effect. But the proportion of narceine existing in opium appears to be so minute, there can be no risk of error from this source.

The requisite conditions being now better understood, the samples were examined afresh by the reduction process, and this time the results were deemed satisfactory.

This sketch of the course of the inquiry may serve to explain some parts of the process finally adopted, which I will proceed to describe:

Apparatus.—Three strong tubes of colorless glass, like ordinary test-tubes in form, about eight inches in length, and of exactly equal bore, which should be about half an inch. At first I used graduated tubes, but afterwards found it better to employ separate measures of smaller calibre, viz., a pipette to deliver 100-grain measures; a tube-measure for 50 and 100 grain measures; and a smaller one for 5, 7·5 and 10 grain-measures.

Standard Solution of Morphia.—Weigh off accurately one grain of pure and well-dried morphia, and dissolve it in 50 grain-measures of diluted sulphuric acid; B. P., and sufficient distilled water to make the volume exactly 1000 grain-measures. This solution will keep without appreciable change for some weeks.

Solution of Iodic Acid.—Place in a flask 100 grains of iodine, 100

grains of potassium chlorate, 1 fluid-drachm of strong nitric acid and 2 ounces of water. Heat the mixture until the iodine is perfectly oxidized; nearly neutralize with sodium carbonate, then add an excess of solution of barium chloride. Wash the barium iodate by decantation, and boil it for half an hour with a fluid-drachm of strong sulphuric acid and 3 ounces of water. When cold, filter and add water to make the bulk 6 fluidounces.

Sample Solution.—If the opium is in the moist state, dry 100 grains on the water-bath, and after noting the loss in weight reduce it to *fine* powder. Put 20 grains of the powder into a two-ounce flask with one grain of oxalic acid and half a fluidounce of alcohol, sp. gr. 0·838, and, having attached a condensing-tube to the flask, place the lower part of the latter in water hot enough to cause the spirit to boil gently, and continue the boiling for half an hour. Filter into a porcelain dish, and wash the residue with half a fluidounce of hot spirit. Add to the filtrate half an ounce of water, and evaporate down to about a quarter of an ounce, stirring frequently, then add an ounce of cold water. After the mixture has stood for ten minutes or so, remove the precipitated resinoid matter by the filter, and wash it with a little cold water, adding the washings to the filtrate. Boil the latter with 10 grains of slaked lime for two or three minutes, filter, and wash the calcium compounds with hot water. Slightly acidulate the filtrate with solution of oxalic acid, and evaporate it down to about a fluidounce. After cooling, add 12 grains of caustic potash and set aside for a quarter of an hour; then filter, and wash the precipitate with a drachm of liquor potassæ, diluted with two or three times as much water. Divide the filtrate into two exactly equal portions: pour one of these into a 1000-grain measure, add 100 grain measures of diluted sulphuric acid, B. P., and water up to the mark and mix well. Finally, shake the small quantity of solution required for experiment—about half an ounce—with a fourth of its bulk of carbon disulphide, and pass it through a filter.

The Experiment.—Measure off with the pipette 100 grain measures of the sample solution, and transfer it to one of the trial tubes, add 100 grain measures of carbon disulphide, and, lastly, 50 grain measures of iodic acid solution; then immediately close the tube with a sound cork and shake briskly for *half a minute.* The rose-colored solution of iodine quickly subsides, but its brightness is sometimes rather obscured by a slight filmy deposit on the glass. In this case

pour the contents of the tube into a clean one. Take next 100 grain measures of the standard solution of morphia, and, using a fresh tube, repeat the operation just described. Compare now the two rose-tinted liquids by holding the tubes side by side between the eye and a white cloud, or placing them against thin white paper attached to a window-pane. If the colors are equal in intensity, the powdered sample contains 10 per cent. of morphia. If unequal, add to the deeper one carbon disulphide in small successive measured quantities—say of 5 or 10 grain measures at a time, as may seem necessary—gently mixing it in with a glass rod. When by this means the tints have been rendered equal in depth, the calculation is simple.

Let v = volume in grain measures of standard color;

Let v' = volume in grain measures of sample color;

then $\frac{v' \times 10}{v} = x$ = percentage of morphia in powdered sample.

And if w = percentage loss of weight in drying, $\frac{100 - w \times x}{100}$ = percentage of morphia in moist sample.

Precaution.—The carbon disulphide used must remain colorless when shaken with solution of iodic acid.

In order to test the ability of the eye to discern slight inequalities of tint, the relative quantities of iodine in the standard and sample colors were sometimes estimated at the end of an experiment by Dupré's method. This was done by removing the supernatant aqueous liquid with a pipette, washing the solution of iodine with distilled water, transferring it to a stoppered bottle. and adding, with vigorous shaking, weak chlorine water from a burette until the color just disappeared. The results are given in the subjoined table, and show, I think, that the eye has a fair claim to be trusted. When a number of morphia determinations have to be made, the use of this iodimetric process is convenient, as only a single daily reference to the standard is then needed.

The time required for determining the morphia value of opium on the above plan is about two hours and a half. As regards accuracy and reliability, I may state, that so far as my experiments have gone—and they have not been few—the results have appeared, after careful scrutiny, to be nearer approximations to the truth than those obtained by the ordinary methods by precipitation. I have, therefore, much confidence in the process. Nevertheless, I am ready to admit

that an analytical method which deals, as this does, with a substance so complex and variable in composition as opium, must have an extended trial before its reliability can be placed altogether beyond doubt.

Table of Results.

Sample.	Percentage of crude morphia obtained by B. P. process.	Weight of precipitate after washing with chloroform.	Amount of real morphia in precipitate estimated by reduction process.		Percentage of real morphia in sample as determined by reduction process.	
			Colorimetric.	Iodimetric.	Colorimetric.	Iodimetric.
1	13·8	12·8	11 0		11·3	
2	12·0	10·8	9·4		10 0	
3	11·2	10·0	8·8		9·2	
4	10·2	9·3	7·7	7·81	8·0	8·1
5	5 8	5·6	5·0		5·4	
6	16 2	15·0	13·6		14 0	
7	6·4	6·1	5·5	5·76	6·4	6·43
8	10·0	9·4	9·0		10·0	
9	13·8	12·6	11·0	11·2	11·5	11·8
10	11·3	10·6	9·6		10 0	
11	14·2	13·0	11·6		12·0	
12	6·1	5·7	5·0	5·13	5·1	5·28
13	10·4	9·8	8·7		9·0	
14	12·6	12·4	12·0		12·5	
15	11·4	10·1	8 8	8·6	9·6	9·5
16	9·5	8·7	7·6	7·4	8·3	8·48
17	9·4	9·2	8 8		9·5	
18	17·4	15·8	13·8	14·0	14·5	14·2

Sheffield, October, 1871.

COMPLEX NATURE OF CATHARTINE.

By E. Bourgoin.

After first referring to the researches made by Lassaigne and Fennelle, in 1821, on the senna leaves, and allusion being made to the cathartine then discovered and considered to be the active principle of the drug alluded to, the author states that, having occasion to prepare cathartine, he has, on experimenting with it, found it to be made up of chrysophanic acid, a dextrogyre glucose, and chrysophanine. The cathartine, prepared as described by Lassaigne and Fennelle, is first treated with ether, whereby the chrysophanic acid is eliminated; next, the residue is treated with water, whereby the dextrogyre glu-

cose is dissolved; the chrysophanine is best obtained by treating the cathartine first with ether, next dissolving it in water, and precipitating that solution with acetate of lead, the chrysophanine combining with lead, and being set free by treating this lead compound with sulphuretted hydrogen. When, however, it is desired to obtain a large quantity of chrysophanine, it is best to work with a strong senna infusion, from which the mucilage is thrown down by means of alcohol, the clear solution next treated with neutral acetate of lead solution, further treatment with sulphuretted hydrogen, filtration, evaporation of the clear liquid to syrupy consistence, and precipitation with alcohol at 90 per cent.; the precipitate (crude chrysophanine) is purified by means of alcohol, until that liquid runs off colorless. The properties of chrysophanine will be described by the author in another paper.—*Chem. News, Jan.* 19, 1872, *from Compt. rend., Dec.* 18, 1871.

THE ODORS OF PLANTS.*

BY JAMES BRITTEN.

The subject of the phenomena of odor and color in plants, and of the causes which induce or govern them, is one of considerable interest; and the relations which exist between the two are sufficiently striking. Thus, it has been statistically ascertained, and a very little reflection will confirm the conclusion, that white flowers stand highest in number among fragrant species, next yellow, then red, and lastly, blue. And it is among white flowers that disagreeable odors are most seldom found, while orange and brown are frequently unpleasant in scent. In such calculations, however, it must be remembered that the appreciation of odors is by no means the same to different people: scents which are agreeable to one, are often the reverse to another. The strong odor of *Tagetes patula* and *T. erecta* is not objectionable to some; while others, besides the well-known fox hunter, are of opinion that the Sweet Violet is a "stinking flower." There are even some unhappy beings—we trust they are but few—who cannot endure the scent of a rose. The sense of smell, too, is much more acute in some persons than in others; and we have frequently remarked an analogy to color-blindness in the want of perception of odors manifested by some among our friends.

A good summary and comparison of scents will be found in M.

* Reprinted from the *Gardener's Chronicle.*

Lecoq's "Etudes sur la Géographie Botanique de l'Europe," from which some of the following details are borrowed. In almost every case, however, additional instances of similarity will suggest themselves to the reader, especially if he be gifted with a keen nose, and a good memory for smells. In the first place, it may be laid down as a general principle, that a larger proportion of white flowers are fragrant than those of any other color; yellow comes next, then red, and lastly, blue; after which, and in the same order, may be reckoned violet, green, orange, brown and black.

Among white flowers, certain types of scent are very prevalent. Thus many umbelliferous plants have a strong odor of honey, which is very marked in *Anthriscus sylvestris*, and is found also in the aquatic ranunculi; *Eucalyptus glandulosa* recalls the same scent; and in the almond and apricot we encounter it, qualified by that flavor of prussic acid which is so perceptible in the hawthorn when one does not inhale too closely the fragrance of its flowers. This scent is intensified in *Spiræa Ulmaria;* in *S. Filipendula* it is modified by a *soupçon* of the odor which is found also in the privet and in *Actæa spicata*, and attains distinctness in the elder. Many rubiaceous shrubs have similar odors, and resemble certain *Apocyneæ;* and the *Philadelphus coronarius* has so much affinity in scent with the orange, that it is often called the "mock orange bloom." Other types of scent among white flowers are presented by the white lily, the jasmine, the tuberose, and the lily-of-the-valley. It is curious to observe that, among cultivated plants, white-flowered varieties are very often the most—if not the only—fragrant ones; this is the case with the white petunia (?) and a commonly cultivated white-flowered verbena (?). It is also worthy of notice that many of the scents among white flowers are only pleasant when in very small quantity and become absolutely disagreeable when intensified; this is the case, especially, with the hawthorn and white lily.

Among yellow flowers, the scent of the orange is often found, we may note, in the common broom, and in *Biscutella saxatilis* and other yellow Crucifers. The curious alcoholic odor which has earned for *Nuphar lutea* its English name of "Brandy-bottle" is found also in the yellow *Brugmansia floribunda*, as well as in the yellow catkins of *Salix caprea*. *Hippocrepis comosa* recalls the smell of cheese, and this odor attains its maximum in the blossoms of *Genista Scorpius*. The honey scent is found in several yellow-blossomed plants, notably in *Galium verum* and *Mahonia intermedia*.

Roses and pinks occur to one at once, when sweet-scented red-flowered plants are referred to; but with these exceptions it is difficult to characterize the odors of plants belonging to this series. But among lilac flowers a great resemblance in scent may be traced; thus the sweet odor of vanilla, which is so powerful in the garden heliotrope, is found again in different degrees of intensity in *Petasites fragrans*, *Valeriana officinalis*, and the common lilac; we meet with it also in *Plantago media*, which is exceptional among plantains in its fragrance and in its colored corolla.

Blue flowers are very rarely fragrant, and when so, only in a slight degree. The blue variety of *Phyteuma spicata* exhales a faint perfume, and one or two campanulas are slightly scented. *Franciscea Hopeana* has, however, deliciously fragrant blossoms, which recall at once the scent of the orange and the tuberose; but although at first blue, they soon lose their color and become white.

Certain species, the flowers of which are of sombre hues, are very fragrant. Thus in the early flowering *Calycanthus præcox*, one finds a multitude of odors, such as rose, jasmine and tuberose, harmoniously blended. The night-flowering stock (*Matthiola tristis*), *Hesperis tristis*, and one or two more, compensate by their fragrance for the absence of beauty of color; while other dark-flowered plants, such as the henbane, have an intensely disagreeable odor.

Thus we see that it is not the most brilliant flowers which are the most fragrant; indeed, many of the most brilliant in color have no scent whatever. The beautiful *Malvaceæ* of equinoctial America, the pelargoniums of the Cape, the passion-flowers (?), the gladioli, and some of the most striking *Leguminosæ* are destitute of perfume.

One or two conclusions as to the geographical distribution of sweet-scented plants may be arrived at from the preceding facts, united with many more which space will not permit us to cite. We have seen that a large proportion of pale and white blossoms are fragrant; and it is ascertained that these predominate in northern regions. We may therefore conclude that the relative number of odorous flowers is greater towards the poles than towards the equator. It would seem that the too powerful action of light and heat is opposed to the emanation of the odors of flowers; and we see many species, which are scarcely fragrant during the day, become so in the evening or at night. But if the odors emitted by the blossoms are more frequent in the North, the reverse is the case with the essences enclosed in the glands.

Plants with fragrant leaves, aromatic fruits, and wood penetrated with essential oil, are scarcely found except in warm or tropical countries. —*Pharm. Journ. and Trans., Jan.* 6, 1872.

ON MEAT AND THE METHODS OF PRESERVING IT.

By H. Endemann, Ph. D.

Meat is composed of various substances, which, up to the present time, are not yet all known. Their number is being increased every few years by new discoveries, which however do not always meet the expectations of over-zealous admirers of Liebig's Extract. Theories, which attribute to newly-discovered substances the life-giving power which has made the extract of meat a valuable medicine, must be confirmed by physiological experiments; whereas, thus far, they have failed entirely to assign a specific function to any of the products of the decomposition of albuminous substances formed in the living organism. I may therefore avoid any omission in the enumeration of the component parts of meat, by grouping all these substances under the general heading, "Products of the Decomposition of Albumen."

Meat consists of fibrin and albumen (about 25 per cent.) and the rest of its solid constituents (about 2½ per cent. in the average) is composed of the products of decomposition of albumen and of alkaline salts. The albuminous substances, fibrin and albumen represent the nourishing properties of meat, while the salts, possessing likewise nourishing qualities, are important for the promotion of digestion. About twenty years have elapsed since Liebig made his first investigations on the constituents of meat. It was then also that he advanced his views concerning the nourishing properties of the extract of meat, and we find in the "Chemische Briefe," published shortly afterwards, his ideas set forth so clearly that the unprofessional reader may understand and duly appreciate them.

I feel confident that the value of this extract was and is, even now, over-estimated. Liebig himself abandoned the idea that the organic constituents of the extract were the agents of its beneficial effects, and experiments, made some years ago in England, show plainly that the ashes of the extract are capable of producing the same effects as the extract itself. Even now, however, after the explosion of the theories that albuminous substances might be built up again from the products of their decomposition, experiments are constantly made to find or-

ganic constituents capable of producing the effects of the extract itself, as is evidenced by the recent discovery of carnine, the physiological effect of which is, according to the experiments, more than doubtful. Liebig states that "the extract, which is produced by extracting meat by cold water, is the nourishment for the muscle;" but the meat liquor is not only the agent of transmitting the nourishment from the blood to the muscles, it also contains the waste products formed during the action of the muscles. Liebig in preparing his extract, however, excludes the real nourishment by coagulating it and carefully collects the products of decomposition for the good of humanity.

But, if the alkalies alone constitute the value of this extract, is there not a waste of most valuable material? The interest of the manufacturer will not be disputed, but why does the intelligent consumer pay dollars for that which he might buy for a few cents?

The fact is, that the public is as yet in the dark; the published experiments are known in most cases only to scientific men and command attention, while the want of support by illustrious names makes them soon forgotten. For the proper utilization of meat, the albuminous as well as the extractive portion must be preserved, for the former not only re-supplies the body with albumen, which had become decomposed by the action of the muscles, but serves also as a combustible, while the extractive portion is necessary for a proper digestion. Let us see how these requirements are fulfilled by the methods in vogue for the utilization and preservation of meat.

When meat is salted, it is treated with an excess of salts (common salt and saltpetre), which absorb the water, forming a concentrated solution, which contains besides these salts much of the extractive portion of the meat. This solution is removed before using the meat, and the latter is even soaked in fresh water for some time, to remove the excess of salts. It is evident that such meat is very poor in extractive salts, and for this reason very difficult to digest.

The action of smoke depends upon the carbolic or cresylic acid contained therein. These substances coagulate the albumen and fibrin, and thus prevent decomposition. Smoked meat is therefore not so easily digested as raw beef, since not only the gastric juice must remove the carbolic acid before digestion is possible, but the albumen and fibrin, being already coagulated, will resist more strongly the dissolving action of the juice. The conditions will be even more unfavorable for a proper digestion, if the salting and smoking process have been combined.

One of the most rational processes of modern invention is the preservation of meat by enclosing it in air-tight cans. This process would undoubtedly give full satisfaction, if it were not for mechanical difficulties, which cannot as yet be surmounted. If properly carried out, however, it is the best process known, because it furnishes the meat in its pure and unadulterated state, the great agent of decomposition, atmospheric air, being excluded.

When we come to consider the different agents of decomposition, we find that they are, first the atmospheric air with its myriad germs and spores, and secondly water. No decomposition is possible without the latter, and I propose therefore the following method of preservation. The meat, after having been cut in slices, should be dried in a hot air-chamber, at a temperature below 140° Fah. If the apparatus is well constructed, the drying may be completed within three hours, if filtered air be drawn rapidly through the chamber.

In this operation the meat becomes quite hard, and can easily be ground in a mill. It is then in the condition which is best adapted for use. The fibrin and albumen not being coagulated, are able to take up water and the fibres expand into their natural state.

The powder is of a slight brownish yellow color; has a trifling odor of roast meat, and keeps exceedingly well. This proves that the salts contained in the meat are entirely sufficient for its preservation, if the quantity of water keeping them in solution is greatly diminished by evaporation.

Its use is easily understood. For beef soup—two ounces of the powder are boiled for a few minutes with one pint of water and the other usual ingredients. The soup thus prepared will be stronger than that prepared from half a pound of fresh meat, for a solid piece, even after long boiling will never permit as thorough extracting as the meat powder.

For solid roast meat dishes, the addition of one egg to a pound of meat powder, together with the requisite quantity of water, suffices to reunite the separated fibres by means of the coagulating egg-albumen.

The fact that the albumen and fibrin are not coagulated, makes it a valuable medicine for consumptives, and in all cases of debility where good nourishment is requisite. It is even more easily digested than raw meat, for the reason that, if it is taken with cold or lukewarm water, the process of swelling will take place in the stomach, where being surrounded by gastric juice, the latter is absorbed.

This I have tested by actual experiment. Corresponding quantities of raw meat and meat powder were digested in glass flasks, under the influence of equal quantities of diluted muriatic acid and pepsin at a temperature of about 110° Fah. While the contents of the vessel containing the meat powder, after six hours' treatment, represented a uniform, though not quite clear fluid, the vessel containing the raw beef contained yet pieces of the undigested material. A dog was fed for eight days with a daily ration of five ounces of meat powder, corresponding to about one pound of fresh meat. The average weight of the discharges from the rectum was about one-fourth ounce daily (dried at 200° Fah.), the maximum being 8·5 grms., the minimum 5·2 grms. Microscopical examination did not show even traces of undigested meat fibre. The only part of the meat found undigested were the relics of the sinews. Pieces of wood, cork, paper and threads of the carpets formed, besides the mucous membranes and constituents of the bile, the solid part of the excrements. The dog, who had formerly been fed on mixed food, grew very lively during this treatment. His weight at the end of the treatment was 12½ pounds.

As no apparatus in which the temperature could be regulated during the drying of the meat existed, I have been obliged to construct one according to my own ideas.

This apparatus is so constructed, that the air is sucked through it by an exhauster moved by steam power. Two valves, one for hot air, the other for cold air, the air being filtered in both cases through cotton, and both acting under the equal outside pressure, supply the apparatus with pure dry air of a certain temperature, which is regulated by the aid of a thermometer. An apparatus of this kind is in operation at my laboratory.

The drying room of this apparatus measures 27 cubic feet. The air is heated by steam pipes carrying 60 lbs. pressure, and having 27 square feet heating surface. The exhauster is an inverted quadruple Fan blower of the Rahway Manufacturing Company, of Rahway, N.J., and removes by 420 revolutions, 25 cubic feet of air per minute.

By increasing the heating surface and using a larger exhauster, the apparatus may be made more effective yet, so that 100 lbs. of beef can be easily dried within three or four hours.

Chemical Laboratory, 128 *Worth St.*, *New York*.

—*Amer. Chemist*, *Jan.*, 1872.

ON THE ACTION OF HEAT UPON SOLUTIONS OF HYDRATED SALTS.*

By C. R. Tichborne, F. C. S.

The author used for the examination of the dissociation of water of hydration, such salts as presented a change of color when passing from the hydrated to the anhydrous state. He had experimented upon those of cobalt, copper and nickel. Thus, to take the familiar instance of cobalt, the anhydrous salts of which are blue, whilst the hydrated are pink, no amount of boiling will convert a pink solution of cobalt into a blue one, except it is extremely concentrated, but in every case such salts were all changed into the anhydrous condition on boiling under pressure. When the "thermanalytic" point, as the author called it, was reached, the pink cobalt salts were converted into the blue ones, copper into yellowish-brown, and, in the case of chloride, nearly a black solution. Some caution is required in the performance of these experiments owing to the danger of an explosion. An important observation made in connection with these experiments was the fact that dilution acted differently in the cases of chromatic change produced by dehydration and those producing basic results. It is exactly the reverse. The author had pointed out in a previous report that chromatic changes resulting from the formation of basic salts by dissociation (*i. e.* chromic or ferric salts) is influenced by dilution lowering the thermanalytic point, or the increase in volume of water will assist the dissociation. But in the second class the increase in the volume of water ruins the thermanalytic point and retards the dissociation.

Prof. Sullivan complimented the author upon the importance of this investigation, and this line of research generally.—*Chem. News*, *Jan.* 19, 1872.

ANOMALOUS PRODUCTION OF OZONE.

By Henry H. Croft.

Professor of Chemistry, University College, Toronto.

About six years ago, when evaporating some syrupy Iodic Acid, prepared according to Millon's process, over sulphuric acid, I noticed that when the acid began to crystallise, the air in the jar (covering

* Abstract of a paper read before the Royal Irish Academy, Jan. 8. 1872.

the drying dish) had a strong smell of ozone, or active oxygen. A couple of years afterwards, on again making iodic acid, this observation recurred to my mind, and I carefully tested the air in the jar during the evaporation; no trace of ozone could be detected until the acid began to crystallize, when the smell of ozone became immediately perceptible, and all the usual tests for that body succeeded perfectly.

During the last month I have had occasion to convert two ounces of iodine into iodic acid, and exactly the same result has been observed. The acid usually solidifies to opaque verrucose masses; but, on this occasion, the crystals formed were clear and brilliant. The solution had in this, as in all the former cases, been boiled down to thin syrup, so that no trace of chlorine, or nitric acid, could possibly have remained to act on the ozone paper. The air in the jar was tested from day to day, both by the smell, and the action of iodized starch paper. Even when a few crystals began to form no change was noticed, but when the crystallization set in fully the evolution of ozone was most remarkable, the strong smell being quite characteristic, entirely different from that of chlorine or nitric acid.

I am quite unable to account for this ozonification of the air (or oxygen) over crystallizing iodic acid. My friend, Mr. Sterry Hunt, has suggested that it may arise from a partial deoxidation similar to that which produced ozone when hypermanganates are decomposed, as observed by him and other chemists. As the crystallizing acid remains perfectly white, either opaque or transparent, and as the lower oxides of iodine are of a yellow, or even brown color, according to Millon, I cannot accept this explanation, and even if it were true, the phenomenon would be equally unintelligible—a reduction taking place during crystallization. I can offer no explanation of the *simple fact* that air over crystallizing pure iodic acid, becomes ozonized, but I think that the observation seems to offer a wide field for further experiments, which I have unfortunately not the time to carry out.—*Canadian Pharm Journ.*, *Jan.*, 1872.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—**The annual commencement will take place on the evening of March 15th, at the Academy of Music; the valedictory will be delivered by Professor Maisch.**

The Board of Trustees have resolved to assist the local committee of the American Medical Association, which will meet in this city on May 7th next, in their endeavor to get up an exhibition of objects of interest to the medical profession. The committee of the College desire for this purpose mainly specimens of new or rare drugs, medicinal chemicals and pharmaceutical preparations; nostrums or secret preparations will not be accepted. Offers of suitable articles are solicited for this exhibition during the month of March or early

in April. The committee consists of James T. Shinn, *Chairman*, J. M. Maisch, Charles Bullock, Dr. W. H. Pile, Edward Parrish, M. L. Rosengarten and Joseph P. Remington

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THE NEW YORK COLLEGE OF PHARMACY will have its commencement in Association Hall, corner of Fourth avenue and 23d street, on Tuesday, March 19. Professor Chandler will deliver the valedictory address.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN held a pharmaceutical meeting on February 7th. Among the donations to the Museum was a specimen of chloral hydrate, a few ounces of which had been kept in a half gallon jar; from this small quantity there had grown out about twenty or thirty spear-like crystals, five or six inches in length, a phenomenon which has not been satisfactorily explained.*

Mr. Greenish read a "Note on Tincture of Cinnamon," which elicited the following interesting discussion, which we take from the Pharmaceutical Journal and Transactions, February 10th:

The PRESIDENT inquired, in reference to Mr. Greenish's statement that with a strong spirituous preparation the decomposition of tincture of cinnamon would not be likely to occur, how long it was since the author made the preparation of tincture of cinnamon upon which he based his observations?

MR. GREENISH: I think quite two years.

The PRESIDENT said that was a considerable time; and if the preparation would keep two years, that was perhaps as long as could be expected. Not only did he agree with Mr. Greenish and Mr. Giles that the different strengths of spirit might be used with advantage for different tinctures, but he also thought that sometimes a different mode of applying the spirit and preparing the ingredients might be used with advantage. He might mention especially the tincture of calumba. Calumba was one of those roots which was with great difficulty exhausted, and it was also one that absorbed a large amount of the menstruum, of which there was a considerable loss in making the tincture. He had found (and he believed this method was approved by Professor Redwood) that it was better to slice the calumba than to powder it. But still he found that there was a difficulty in slicing it equally, and that with an ordinary root cutter the substance would break off, and some pieces would be lump and thicker than they ought to be. Hence he had taken a portion of the distilled water which he should have used in making the proof spirit, and placed some of it over the calumba—the whole uncut root—and allowed it to remain for twelve hours. There was just sufficient water to cover the calumba, and the next morning he found that the substance was in a nice condition for slicing with the cutter,—neither too soft nor too hard. He found, also, that when the calumba was in that condition, the loss was considerably less upon the gallon of tincture than it was when either powdered or ordinary sliced calumba was employed. He believed that some process of that kind might be applied to other tinctures. Tincture of orange-peel was one upon which there was a great loss of menstruum; and he believed an improvement might be made in its preparation. He was not prepared at present to state exactly what the improvement should be, but he believed that the liquid might be applied to the orange-peel in a better way. He should be glad to hear remarks on the subject.

Professor REDWOOD said that he was sure the members were much indebted to Mr. Greenish for bringing forward this subject, and he (Prof. Redwood) should be glad if gentlemen, who, like the President and Mr. Greenish, were

* In the slow crystallization of chloral hydrate from bisulphide of carbon prismatic needles of such a length are readily obtained. *Editor Amer. Journ. Pharm.*

constantly and largely engaged in the preparation of this and similar medicines ordered in the Pharmacopœia, would give the Society a little more in detail the result of their experiences and observations. It had struck him (Professor Redwood) that there were two points in connection with the subject which it was very important to keep separately before the mind. One was the occurrence of decomposition, and the other was the evidence of a decomposition. It seemed to him that all the inferences which had been formed with reference to the tinctures that had just been brought under their notice were inferences founded simply upon the obvious appearances which the tinctures presented to the eye; and in cases in which there had been some alteration or variation in the mode of operating, such as an alteration in the strength of the menstruum or spirit, it seemed to have been inferred, because there was no evidence to our senses of decomposition, that no decomposition had taken place. He thought that that was too violent an assumption. He was not at all clear that in cases where, in consequence of the use of a stronger spirit, there had been no deposition of insoluble matter, there had been no decomposition. The decomposition might have taken place, though the deposit had not been formed. That was a point upon which they required proof one way or the other. It was quite possible that the spirit had held in solution the product of decomposition which, if a weaker spirit had been used, would have given a muddy appearance to the tincture. If that were so, then there naturally arose another question,—Was there in such a case, or would there be, an advantage in the substitution of the stronger spirit for the weaker? He should be inclined to say, No. He would rather continue the use of the weaker spirit, and for this simple reason, that they wanted the tincture to be used in a definite condition. It might be a tincture which would not keep for more than a certain limited period; and if that were so, it ought to be used within that period, and not used beyond it. If it became muddy when the decomposition took place, that would preclude its use; but if by the use of a different menstruum—a stronger spirit—that muddy character was prevented, then there was an inducement to go on using the tincture when it was in an unfit state. In fact, it appeared to him that the case was somewhat analogous to that of oil of bitter almonds. Oil of bitter almonds in the purified state, freed from hydrocyanic acid, underwent a speedy oxidation. He would not say that this oxidation always occurred, for Dr. Tilden had shown them that if the oil were anhydrous, it might be kept without rapid oxidation; but in its ordinary state, when purified from hydrocyanic acid, it would oxidize quickly, and pass into the state of benzoic acid, which would crystallize in it; and, in place of the fluid oil, there would be a mass of crystals nearly filling the bottle, and they would at once indicate that there had occurred such a change as would preclude the use of the oil, or at least of the altered part of it. If, on the other hand, they had essence of bitter almonds instead of oil,—that is to say, if they had dissolved the oil previously in a certain quantity of spirit,—there was no longer such an indication as that. There would be no deposition of crystalline matter, because there was present a menstruum (the spirit) which, as the benzoic acid formed, dissolved it. That seemed to him to be a somewhat analogous case to what possibly occurred in tincture of cinnamon. It was most desirable that there should be some experiments to indicate whether decomposition took place when external evidences of it were absent.

Mr. Greenish said that the cinnamon had absolutely gone out of the two preparations he had mentioned, or scarcely a trace of it was left, and, therefore, in the decomposition the cinnamon was evidently decomposed, and there was a very copious precipitate. When made with the stronger spirit, the compound tincture of cinnamon and the simple tincture had each a strong smell of cinnamon after having been kept for about two years. In every Pharmacopœia which he had consulted on the subject, except that of the United States, a stronger spirit was used—either six of spirit to two of water, or rectified spirit.

The President asked Professor Redwood what method he would propose to be adopted for ascertaining at what time chemical change commenced in tincture of cinnamon, and to what extent?

Professor Redwood said Mr. Greenish had just referred to one evidence which certainly went to show that the tincture made with the strong spirit had retained the cinnamon oil longer than the other, for the flavor of cinnamon still remained. What they would have to look for would undoubtedly be oil of cinnamon in the one case, and cinnamic acid in the other. As the oil of cinnamon disappeard, the cinnamic acid would be produced. But it was not easy to judge of the proportion of an essential oil in a strong solution of it, by the taste or smell He had recently had evidence of this in the investigation of a subject allied to that before the meeting, and which he had intended alluding to in connection with the President's paper submitted to them at the previous meeting. One of the subjects referred to in that paper was syrup of tolu ; and it was stated that in making that preparation the tolu did not become completely exhausted of the constituents which gave the peculiar character to the syrup. That was a subject of some importance to the pharmaceutist, and one, moreover, to which he had directed his attention, independently of its being brought forward in the paper. He had been requested to examine a specimen of balsam of tolu for the purpose of ascertaining whether it was genuine or not. He found clearly that it consisted of the resinous matter of the balsam of tolu answering to the reactions which that resin would give, but it was deficient in some of the most important constituents of good balsam of tolu. namely, cinnamic acid and the peculiar oily matter which gave to balsam of tolu much of its peculiar flavor. He concluded that it was balsam of tolu which had been used for making syrup, or for some similar purpose. In compliance with a suggestion made by Mr. Hanbury, he had used some of this partially-exhausted balsam for making syrup of tolu according to the Pharmacopœia, and compared the product with some syrup made with perfectly good and genuine balsam. Now, taking the syrups in the form in which he had produced them, he did not find it very easy to distinguish the one from the other ; but if half an ounce of each of those syrups were put into a bottle and diluted with eight or ten times its volume of water, there would be no difficulty in distinguishing between them,—one solution being poor and vapid compared with the other He should test the tinctures in a somewhat similar way. In examining the balsams, of course he should go to the quantitative determination of the proportions of cinnamic acid in them, as there appeared a probability that exhausted balsam of tolu might find its way into commerce. It was quite clear that something more was required than was at present given in the Pharmacopœia for the purpose of indicating what balsam of tolu ought to be. In the first volume of the Pharmaceutical Journal, Professor Soubeiran, of Paris, reported the results of experiments he had made in consequence of a statement that the same balsam of tolu might be used two or three times for making syrup without any deterioration in the quality of the product. Soubeiran came to the conclusion that, taking account of the proportion of balsam of tolu which was ordered, it could be used twice without deterioration in the product, but not more than twice. The proportion then ordered in the Paris Codex was one part of balsam to four parts of water It was evident from the experiments of Soubeiran that a smaller proportion would yield a syrup equally good, and the proportion in the Paris Codex has therefore been altered to one part of balsam to ten of water. The proportion prescribed in the British Pharmacopœia is even less, being one to about thirteen, while in Russia the proportion remains at one to four. Having reference to the quality of this syrup, we could neither diminish the proportion of balsam ordered in our Pharmacopœia nor use exhausted balsam without injury to the product. There was a vast difference between syrup of tolu prepared according to the Pharmacopœia, and that which had been occasionally recommended, which was produced by putting tincture of tolu into ordinary syrup. Syrup of tolu, made according to the Pharmacopœia, was one of the most elegant, agreeable and successful of our officinal syrups. It contained a considerable quantity of cinnamic acid, while it derived the flavor of the balsam from the oily and resinous matter. On every ground it was important to maintain the character

of that syrup, and in doing so those who made it must take care that they were not imposed upon with exhausted balsam.

Mr. Mackay said that he would refer to the analogy which Prof. Redwood had stated existed between tincture of cinnamon, when kept for a considerable time, and the remarkable change which took place in the oil of bitter almonds when freed from prussic acid and diluted with spirit. Some years ago a quantity of essential oil of bitter almonds was accidentally sent out in small bottles by a celebrated house in England and distributed throughout the length and breadth of the country under the name of "essence of bitter almonds," and a portion of the oil so labelled came into his neighborhood and fell into the hands of an inquisitive servant girl, who swallowed fully a teaspoonful, the result being, he need scarcely add, fatal. The public mind then became very much alarmed about the use of the essence of bitter almonds in any shape, and the consequence was that a great many persons who had been engaged previously in the manufacture of essence of bitter almonds, determined to make their preparation free from prussic acid. He was amongst the number who determined to do so, and distilled very large quantities of the oil in the usual way over potash and lime, in which process, as a matter of course, he was successful in removing the prussic acid; but the effect when this oil was diluted with spirit was very much what Prof. Redwood had described: there was a considerable quantity of benzoic acid formed, more especially if the bottle happened to be exposed to the sunlight. But then came the peculiarity which he wished to notice, namely, that though there was a deposition sufficiently great to line the interior of the bottle with benzoic acid, there was not an absence of flavor. There was so much of the peculiar flavor of bitter almonds left that the compound was used freely for domestic purposes, and in the only cases in which parties refused to use it, the refusal was due more to the unsightly appearance of the liquid than to the positive absence of flavor.

After some further remarks upon the preservative influence of alcohol upon organic matters, the following papers were read and discussed: "The Madagascar Cardamom or Longouze," by Mr. Daniel Hanbury; "The Separation and Quantitative Determination of the Different Cinchona Alkaloids" and "Samadera Indica," by Dr. J. E. De Vrij. The bark of this tree, and particularly the kernel of the fruit, contain a crystallizable bitter principle, samaderin, discovered in 1857 by Van Tonningen, which gives, with concentrated sulphuric acid, a beautiful red violet color.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held on the afternoon of February 20th, 1872. Dr. Pile presided and William McIntyre, in the absence of the Registrar, was appointed Registrar *pro tem.* The minutes of the last meeting were read and approved.

Professor Rogers, of the University of Pennsylvania, at Philadelphia, was introduced to the meeting.

A copy of the latest edition of the Danish Pharmacopœia, published in 1869, in the Latin language, was presented from Mr. H. M. Wilder.

Professor Parrish exhibited annatto seed from Para, which are said to be used for obtaining a finer tint of color than that which is produced by annatto.

Professor Maisch exhibited specimens of syrup of senega and syrup of ipecac, prepared by Mr. J. B. Moore from his formulas (published in "American

Journal of Pharmacy," March, May and July, 1870), which had been kept for over 16 months; also syrup of orange flowers, prepared of double the strength of the officinal syrup; also, from George W. Kennedy, of Pottsville, Pennsylvania, mistura cretæ, having the sugar replaced by glycerin, and kept for 10 months. Mucilage of gum Arabic was also exhibited by the Professor, made by him in 1870, in which half the water was replaced by glycerin (see Mr. Rother's paper, on page 113 of the present number.) This mucilage had been made for certain investigations which have not been finished.

Professor Parrish exhibited to the meeting camphor in the state of powder, prepared by Mr. C. H. Heinitsh, last October, by sublimation, as proposed by Mr. Lowd. It was still in a pulverulent condition, and consisted of very minute crystals.

Professor Procter presented a specimen of the oil of the liver of the sun fish, prepared by Mr. Marvin (manufacturer of cod-liver oil), at Portsmouth, N. H. This oil has a bright orange-yellow color, an odor differing from cod-liver oil, and was prepared in the same manner as cod-liver oil. Nothing is known of its medicinal properties. This fish is the *Tetraodon mola*, a species of ostracion described in the 10th volume of Cuvier's work (Pisces).

Professor Procter now exhibited some specimens of organic principles, made by Prof. E. S. Wayne, of Cincinnati. These were hydrastin, from *Hydrastis Canadensis;* sulphate of berberina, from the same plant; marrubin, the bitter principle of horehound; phloridzin, from apple tree bark; xanthoxylin, from the bark of *Xanthoxylum fraxineum*, and celastrin, from *Celastrus scandens.* The two last Mr. Wayne claims to have discovered. They are both neutral principles. Xanthoxylin from this plant was described by Dr. Edward Staples in the 1st volume of the "American Journal of Pharmacy," page 163, 1829, which Mr. Wayne has overlooked. The celastrin, which now for the first time is noticed, is in perfectly white crystalline masses of minute crystals like chloral hydrate. We are not aware of its properties or characteristics, but these will be noticed in an article to be prepared by Prof. Wayne.

Professor Maisch exhibited cinnamic acid and styracin of various degrees of purity, obtained from liquid storax. Styracin may be readily obtained in tufts of snow-white needles, by crystallizing it from petroleum benzine. He likewise showed some bibromide of camphor, $C_{20}\ H_{16}\ O_2\ Br_2$, discovered by Laurent in 1840, and monobromated camphor, $C_{20}\ H_{15}\ Br\ O_2$, discovered by Swartz in 1862, and lately recommended by Prof. Deneffe as a sedative for the nervous system. (See Amer. Journ. Pharm. 1872, p. 84). In attempting to make this new therapeutic agent on a somewhat larger scale, an explosion took place while the closed vessel was kept in boiling water, in consequence of the pressure exerted by the confined vapors of hydrobromic acid, uncombined bromine and camphor. Suitable precautions having been taken in anticipation of such a possibility, no injury was sustained. The monobromized camphor resembles Borneo camphor in odor.

Professor Bridges said it afforded him much pleasure to call the attention of the meeting to a new industry in this country—the manufacture of phosphorus, by Messrs. Rose and Lowell, of Rancocas, Burlington County, New Jersey. The bottle on the table, marked Jan., 1872, is believed to contain the first stick

of phosphorus cast in America, and presented a handsome appearance. Dr. Pile remarked that Mr. Rose had informed him in conversation that it was made from spent bone black from the sugar refineries, and pays a profit at the market rates. The manufacturers are already able to supply it in large quantities.

Professor Rogers was called upon to make a few remarks about the recent investigation in regard to the sale of medical and other diplomas. The Doctor suggested that the meeting would be interested to first hear something in regard to the recent veto of the Pharmaceutical Bill by the Governor. He eulogized the bill as a wise and just measure, and expressed his wonder and astonishment at the veto.

Professor Parrish rehearsed the history of the bill in detail, from its origin. It was prepared by a committee in consequence of the demands made by the public press, and passed upon by the druggists of Philadelphia met in convention, adopted by both houses of the Legislature, and now vetoed by the Governor, who, from the objections as reported in the papers must have been much deceived in the character and effect of the bill. The objections were commented upon, and in conclusion Prof. Parrish asserted that we much need the protection of such a law to give character and standing to our profession. The public need it for their protection.

Dr. Rogers said that for one his heart was deeply interested in our profession, and that we are emphatically on the same platform with the physician: without skilfully prepared remedies the physician's art would be, indeed, very much crippled. Physicians should stand by the pharmacists, and demand the passage of this bill. We need competent persons to dispense our prescriptions, and are well assured that accidents rarely happen with the educated pharmacist.

Prof. Rogers further dwelt upon the outrageous frauds recently discovered in the sale of medical diplomas. This trade has been going on for some time, and only recently the profession and public have found it out. The parties have been until now adroit enough to cover their tracks, but occasional correspondence has brought it to light. Without the participation of the faculty, the press took it up and forced it upon the attention of the Legislature. A committee of investigation has been appointed, and the faculty of the University of Pennsylvania were summoned to testify before it.

The investigation threatening the culprits, they have not attempted to defend their case, but attempted a flank movement and attack upon the University of Pennsylvania.

The Doctor explained the careful mode of printing diplomas, and the impossibility of their falling into the hands of those who would make fraudulent use of them. The charge of their over-issue was a mere invention, entirely unsupported by evidence.

Those fraudulent medical schools—the Philadelphia University of Medicine and Surgery (Paine's), the American University of Philadelphia and the Eclectic Medical College (Buchanan's)—pretend to have competent rules for governing them; but it was proved that they had not lived up to them in any particular. He hoped for legislative action to relieve the public from this

imposition, practiced not only in this country but over Europe. The name University of Philadelphia is frequently confounded with University of Pennsylvania (at Philadelphia), and favors the system of deception complained of.

Professor Bridges remarked that in Europe, where medical practitioners were licensed, many had applied, having these diplomas, who had never been out of their own country.

A discussion took place in regard to political considerations influencing the working of the bill, and the pharmaceutical board to be appointed under its provisions, it being known that some even went so far as to attempt influencing members of the College in reference to nominations before the bill was a law.

It was urged that the main purpose should be to get the bill passed, and then guard against abuses. It was thought that the Governor had not properly investigated the bill.

A copy of the general bill spoken of was now read by Dr. Lynch. It proves to be a copy of the objectionable New York law, adapted to an entire State. It was shown that the members of State Legislatures, not residents of large cities, had mostly been opposed to general pharmaceutical laws; and, for this reason, the idea of obtaining such a law had been abandoned in most States, efforts being now made to secure the enactment of special laws, with the full expectation that their beneficial influence would in a short time extend to other localities.

The unjust provisions of the proposed general law were fully criticized, and the hope was expressed that, since the Senate had indefinitely postponed it, it would never again be called up in that body.

After some suggestions looking towards a meeting of druggists and pharmacists to take proper action in this matter, the meeting adjourned.

William McIntyre, *Registrar pro tem.*

Editorial Department.

The Philadelphia Pharmacy Bill, which we informed our readers, in February, had been introduced in both houses of the Legislature of Pennsylvania, passed, after some opposition in the Senate, with large majorities, and was laid before Governor Geary for approval. On the 20th of February the Philadelphia morning papers contained the following telegram from Harrisburg:

Governor Geary to-night sent to the House his veto of the Philadelphia Drug bill, as prepared by the Pharmaceutical Board. His objections in substance are—that, first, it is a special law for Philadelphia instead of a general law for the State, as it ought to be. New York and New Jersey both have general laws. Second. The bill impresses the Governor with the conviction that it is designed for the special benefit of the Philadelphia College of Pharmacy; and it seems to assume that the graduates of no other medical school have the necessary knowledge to compound or sell drugs. This discrimination appears invidious. The fees in each case are ten dollars, instead of five, as in New York. There is nothing in the bill to prevent interference with practitioners of medicine, who do not keep a pharmacy or store for retailing medicines.

Supposing that this account represents the veto message correctly, we must say the Governor was probably never before misinformed on any subject to a greater extent than in this instance, all the *facts* stated therein being erroneous. However desirable it may be to have the provisions of such a law extend over the entire State, it is nevertheless true, that in *all* the States, with the single exception of Rhode Island, wherever such a general law had been introduced, it was defeated. We must remember that in thinly settled districts, where frequently for many miles no drug store can be found, physicians are compelled to dispense medicines and carry them in suitable forms in their saddle-bags, while the sale of popular remedies is usually in the hands of country storekeepers who make no pretensions as to any acquaintance with drugs and their preparations. Hence the necessity which exists in the larger cities to confine the practice of pharmacy to pharmacists alone is not felt there, and the opposition to *general* laws came, in most cases, only from the representatives of such districts. In most of the States the idea of a general law was soon abandoned, and the efforts confined to the securing of local laws, with the expectation that their provisions would gradually extend to other localities. In 1871 the proposed laws were defeated in the States of New Hampshire, Massachusetts, New Jersey, Ohio, Michigan and Illinois; even the only attempt at a general law for Pennsylvania, introduced by Mr. Harry White into the Senate, January 21st, 1868, was reported with a negative recommendation three days afterwards, and did not pass. Besides the Georgia law of 1848, which is a dead letter, and the Rhode Island law of 1870, modified in 1871, only the following local laws referring to the practice of pharmacy are now in force within the United States: Baltimore, Md., 1870, and New York City, 1871; but bills are pending now before the Legislatures of several States.

That the vetoed bill should be for the special benefit of the Philadelphia College of Pharmacy is nowhere apparent. By its provisions, that institution had merely to *nominate ten persons out of the most skilled and competent pharmacists of the City of Philadelphia* (the nominations were not to be confined to members of the College), out of which number the *Mayor was to appoint* the Pharmaceutical Examining Board, consisting of three nominees. By none of its acts did the College ever pretend that it alone represented all the skill and competency among the pharmacists of Philadelphia, and the reliable and competent pharmacists not affiliated with it would most assuredly have received the same consideration as any one of its members, or rather the nominations would doubtless have been made with the sole regard to effect the greatest possible benefit for the public.

Governor Geary sadly misunderstands the character of *medical* colleges, none of which claims, that we are aware of, that its graduates in medicine are as such also skilled and competent pharmacists; least of all is this the case with the faculty of the *honorable* medical colleges of this city. Regarding graduates in pharmacy, the vetoed law placed on the same footing the diploma or certificate from the Philadelphia College of Pharmacy or *from any other college or school of pharmacy* whose diploma or certificate is based upon a regular term of service in the drug and apothecary business. There was, therefore, no invidious distinction.

The Governor is unaccountably misinformed when he states that the fee in New York for examination and certificate is only five dollars. All our readers know that it is *thirty dollars* for proprietors and *ten dollars* for prescription clerks. As originally proposed by the committee, the fee was fixed at five dollars, but by the meeting of druggists and pharmacists held Dec. 19th, 1871, it was raised so as not to exceed ten dollars, which was considered a more just and proper compensation for the necessary time and labor of the Board.

The last clause of the veto message is obscure. We suppose its meaning to be that practitioners of medicine should not be prevented from furnishing medicines to their own patients. Aside from the question whether or not such a course on the part of physicians in a densely populated city like Philadelphia is desirable or not, there is nothing in the vetoed bill to prevent physicians from drugging their own patients with their own medicines to their heart's content; for section 1 of the vetoed bill refers only to persons who open or carry on a *retail drug or chemical store*. or engage in the *business* of compounding and dispensing medicines, or of *selling at retail* any drugs, chemicals, poisons or medicines.

We have heard it intimated that the officiousness of some parties, in trying to secure their own nomination before the bill had even passed the Legislature, is one of the causes why its former friends in that body are disposed to give it the cold shoulder. We should be sorry if this would prove to be the case; for we are convinced, that by far the largest number of, if not all the members of this College, are determined to make only such nominations which will reflect no discredit upon this institution, and solely with regard to *fitness* for the responsible position.

What the ultimate fate of this vetoed bill will be we cannot predict. If it does not become a law the citizens of Philadelphia cannot attribute the result to any action on the part of the pharmacists; they have done their duty, and voluntarily proposed to take upon themselves obligations in order to protect the public, and to assume responsibilities which no law heretofore enacted in this country had imposed upon them. We have shown that the objections raised by the Chief Executive Officer of the Commonwealth are invalid, and we can leave the subject to the just discrimination of all concerned.

A Model Pharmacy Act was introduced by Mr. White in the Senate of Pennsylvania, January 26th. It proves the danger of objectionable legislation, and is therefore of interest far beyond the limits of this State. The bill, by a decided majority, has been indefinitely postponed. but there is no telling when it may be called up again, and "to be forewarned is to be forearmed."

The bill in question is a verbal copy of the Irving bill, which was saddled upon the pharmacists of New York City nearly a year ago, and altered merely to apply to an entire State. The originators of that law and the commissioners acting under it may congratulate themselves on the excellent example set by them on the subject of regulating the practice of pharmacy in an intelligent community.

No. 129 of the file of the Senate is "An act to establish a board for the examination of and licensing of druggists and venders of medicine in the State

of Pennsylvania." It provides for a board, to be appointed by the Governor for three years, consisting of two skilled physicians and one (unskilled ?) druggist. This board is to examine and license all *druggists and clerks* for a fee of *thirty dollars* each, to be appropriated as a compensation for the services of said board, the *balance, if any*, to be paid into the State Treasury. There being no provision as to the place where the forunate three or a majority thereof shall meet, of course the pharmacists residing on the Delaware may be required to apply for examination on the Monongahela River or Lake Erie, and *vice versa*. No provision is made for any redress against the decisions of this august board. The members are irresponsible for three years, and pocket $30 from every "vender of medicines," and every unfortunate person who may be "employed as clerk by any druggist, keeper, proprietor or superintendent of any drug store in the State."

We recommend this bill to the careful consideration, not only of those who, at its passage, may be engaged as "druggists, venders of medicines," &c., but also to those who may be in need of a fat office. Verily, the New York law is an innocent babe compared with this one, which we are informed was concocted in Philadelphia, and, as stated before, very properly postponed indefinitely by the Senate.

The Bogus Diploma Business, which has been carried on in the city of Philadelphia for a number of years past, has at last attracted the attention of the Legislature, and the Senate has appointed a committee to investigate the matter. Several meetings have been held, and very curious facts have been elicited. A Dr. Bissell declined to answer the question, whether he knew anything about the sale of diplomas, because it might criminate himself. Mr. Jos. B. Reed, reporter of the "Age," testified that Dr. Buchanan, of the Eclectic Medical College, offered him a diploma for $25. Mr. C. S. Bates obtained his diploma from the same college after six months' study; he kills small-pox with sweet spirits of nitre and cold water, has a right to do as he pleases with his own patients, and doctored several years before he got his diploma. Dan. Parlow, colored, an herb doctor, received, as a mark of honor, a diploma from Dr. Buchanan through Dr. Bissell. A W. H. Hacks, colored, attended two courses, of about six lectures each, at the American University of Philadelphia, and obtained a diploma for $25. Jonathan Davis, colored, received his diploma from the same institution, for $30, after attending one course of (six ?) lectures. Dr. Dan. M. Fleming received an honorary degree from the Philadelphia University of Medicine and Surgery for $30. Dr. Harbison told Dr. Hylton that he could get Paine's diplomas (Philadelphia University of Medicine and Surgery) to sell to any one who wished to buy them.

The above comprises only a very small portion of the testimony before the Senate committee, the investigation not being concluded.

Explosions in Chemical Manipulations.—At the meeting of the Imperial Academy of Sciences at Vienna, held January 4th last, Professor Dr. F. C. Schneider communicated his experiments made with the view to obtain iodine compounds of a composition analogous to hypochlorites, chlorites and hypochlo-

rates, and briefly described the process in Anzeiger d. Kais. Akad. d. Wiss. No. 1. Mercury oxy-iodide was treated with a solution of iodine in potassium iodide; after two weeks the excess of the oxy-iodide was covered with a crystalline crust which dissolved neither in water nor in aqueous hydriodic acid. On attempting to break the crust with a glass rod, a violent explosion took place shattering not only the vessel, but also the test bottles standing upon the same table. Professor Schneider was seriously wounded in the face and particularly about the eyes, but is doing well and expects to soon investigate the nature of this dangerous compound. Cyanogen and ammonia were absent, so that the explosion could not have been due to the formation of nitrogen iodide.

Mr. Charles Rice, of New York, was badly burned on the left side of the face and on the left hand, by the bursting of a sealed tube in which he was preparing some apomorphia, a new therapeutical agent, the tube being heated in an oil bath. We are glad to learn that the sufferer is doing well.

Being requested to prepare some monobromated camphor, we experimented first on a small scale with Swarts' method by heating the requisite quantities of bromine and camphor under pressure to 212° F. The experiment was successful, but the pressure in the vessel had evidently been very considerable, in consequence of the volatile nature of the articles used and of the products of decomposition. In attempting now to make a larger quantity, suitable precautions against a possible explosion were adopted, and not in vain; for an explosion occurred in which nearly the entire charge was lost, but without doing any injury. We are now endeavoring to procure this substitution compound by a less dangerous process.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Jahresbericht über die Fortschritte der Pharmacognosie. Pharmacie und Toxicologie, herausgegeben von Med.-Rath Dr. Wiggers, Prof. in Göttingen und Dr. A. Husemann, Prof. in Chur. Neue Folge. 5 Jahrgang, 1870. Göttingen. Vandenhoeck & Ruprecht's Verlag, 1871.

Annual report on the progress of Pharmacognosy, Pharmacy and Toxicology. 8vo. 636 pages.

The systematic arrangement of the literature of the above mentioned branches of science is the same as adopted in the previous volume. The numerous essays are judiciously condensed, presenting all the important facts and details of the various investigations and observations; and frequent references to the same subjects investigated in previous years, enhance the value of the work and are calculated to complete the picture of the present status of our scientific knowledge. The following subjects in the volume before us are of particular importance and interest: Inulin, treated upon 9 pages; Sarsaparilla, 7 pages; Cubebs, 9 pages; the fruit of Mezereon, 5 pages; Tampico jalap, 4 pages; Hyoscyamus, 4 pages; Cinchona, 42 pages; Manna, 7 pages; Conium fruit, 6 pages; Aconite, 12 pages; Opium, 21 pages; Mustard, 3 pages; Guarana, 5 pages; Ricinus, 5 pages; fixed oils, 12 pages; volatile oils, 20 pages; alcohols and derivatives, 49 pages; extracts, 9 pages, &c.

This volume, like its twenty-nine forerunners, will be welcomed by all who appreciate the annual sifting and condensation of the extensive pharmaceutical literature throughout the civilized world.

Year-Book of Pharmacy; comprising abstracts of papers relating to Pharmacy, Materia Medica and Chemistry contributed to British and Foreign Journals from July 1, 1870, to June 30, 1871, with the Transactions of the British Pharmaceutical Conference at the eighth annual meeting, held at Edinburgh, August, 1871. London: John Churchill & Sons. 8vo, 657 pages.

The "Year-Book" occupies about 470 pages, while the remaining 187 pages are devoted to the "Transactions," the Constitution, Roll of Members, List of Local Associations, and the General Index. The Year-Book embraces the following chapters: Materia Medica, Pharmaceutical Chemistry, Pharmacy, Notes and Formulæ, Bibliography. In the different chapters, no attempt has been made at any systematic arrangement, except that papers relating to the same subject are noticed one after the other. Under the head of "Pharmacy" an alphabetical enumeration seems to have been intended. Most of the papers are printed entire or in lengthy abstracts, and rarely we meet with a well digested *resumé* of a paper of importance. References are usually made to the journal in which the essays originally appeared, although for most of the readers of the Year-Book the simultaneous quotation of the journals in the English language, they being more accessible, would probably have rendered the work more valuable. We have also noticed the omission of some papers on similar subjects as those selected by the compilers. The occasional reference to the Year Book of 1870 enhances the value of the last issue, although these references might have been more numerous. Considering everything, we must say that this second Year-Book is a vast improvement over the first issue, and the compilers will, with the experience gained in these two years, doubtless produce a still more valuable report next year.

In the part containing the Transactions of the British Pharmaceutical Conference a number of interesting and valuable papers are printed, which were read at the eighth annual meeting, held at Edinburgh.

Proceedings of the American Pharmaceutical Association at the Nineteenth Annual Meeting, held in St. Louis, Mo., September, 1871. *Also the Constitution and Roll of Members.* Philadelphia: Sherman & Co., printers. 1872. 8vo, 720 pages.

This volume contains the minutes, reports and papers of the last meeting, occupying 605 pages, or 100 pages more than the largest volume (1868) ever published by this Association; and, in addition thereto, the general index for the last ten years, occupying 115 pages, which was prepared by Mr. Thos. S. Wiegand. As for some years past, the report on the Progress of Pharmacy, covering 200 pages, is amongst the most prominent features of this annual publication. Mr. Wm. T. Wenzell, the compiler of this report, has adopted in the main the same systematic arrangement which has been used since 1862: instead of merely reprinting the papers or copious extracts of the same, mere abstracts are produced sufficient to cover the results, more particularly all the information which may be considered really new, the original source of these

contributions being faithfully recorded; but references to American or English journals in which these papers were reproduced are in most cases omitted. The reporter reiterates the recommendation made by several of his predecessors, to appoint a permanent reporter, or divide the labor among several members.

The other committee reports are on the drug market, on sophistications and adulterations, on unofficinal formulas, on legislation, and on the exhibition at the meeting.

The papers read at the meeting were about forty in number, many of considerable interest and importance. This number was considered sufficiently large to warrant the adoption of a new arrangement, and accordingly they are classified under three general headings: Pharmacy, Materia Medica and Chemistry. The list of queries to be reported on at the next meeting, which is to be held at Cleveland, is unusually large, and if the investigation of the subjects is not delayed by the acceptors, the interest and scientific as well as practical value of the next volume will be still greater.

The work may be obtained from the Editor, at the price of $4.50 per copy in paper cover, and bound at $5.25. These prices include the postage.

The Industrial Monthly. A practical Journal for Manufacturers, Mechanics, Builders, Inventors, Engineers, Architects; with a record of Railway Progress, 1872. *Vol.* 3. Issued by the Industrial Publication Company, New York. 4to. $1.50 per year.

With the new year, the *Technologist* has changed its dress and adopted the above title. It is a well conducted Journal, full of useful information, and copiously illustrated with excellent engravings.

New York State Inebriate Asylum, Binghampton, N. Y. Annual Report of the Superintendent and Physician for the year 1871.

This report, which was transmitted to the Legislature of New York, shows the condition and gives an account of the management of the asylum, connected with which is the Ollapod club, to which most of the patients belong, and which was formed for literary and social enjoyment. Since the opening of the Asylum, May 1, 1867, 1017 patients were received at the Asylum, and 244 during the past year.

The Mutual Relations of the Medical Profession, its Press, and the Community. By Dr. Horatio Storer, Jr. Boston: James Campbell, publisher. 1872. 8vo, 24 pages.

Reprinted from the "Journal of the Gynæcological Society, of Boston."

Anæsthetics. By Walter Coles, M.D., of St. Louis, Mo. Wheeling: Frew, Hagang & Hall, printers. 1871.

Reprinted from the "Transactions of the Medical Society of the State of West Virginia," June. 1871.

Vivisection. A prize essay. By G. Fleming, Esq., F.R.G.S., &c. Published originally by the Royal Society for the Prevention of Cruelty to Animals. Philadelphia: Women's branch of the Pa. Society for the Prevention of Cruelty to Animals. 1871. 8vo, 64 pages.

The essay is a powerful argument against vivisection, and attempts to prove that it is neither necessary nor justifiable for the purposes of science. In an appendix the author endeavors to disprove the arguments of Dr. Carpenter, one of the judges, against the position taken by him (the author). A further appendix quotes the argument against vivisection made by Professor H. J. Bigelow, M.D., in his address on "Medical Education in America," which we noticed in our last volume.

It appears to us, that many problems are to be solved connected with physiology and other branches of medical science, in the investigation of which vivisection cannot be avoided. See the paper published on page 115 of this number, on the absorption of mercurial ointment, &c.

The half yearly Abstract of the Medical Sciences, being a digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by William Domett Stone, M.D. Vol. LIV. January, 1872. Philadelphia: Henry C. Lea. 8vo. 292 pages.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXIV; January. Uniform American Edition. New York: W. A. Townsend. 8vo, 331 pages.

Half yearly Compendium of Medical Science. Part IX. January, 1872. Philadelphia: S. W. Butler, M.D. 8vo. 308 pages.

The above three publications contain the usual selections and abstracts of papers on medical and surgical subjects, published during the preceding six months.

The Illustrated Annual of Phrenology and Physiognomy for 1872. By S. R. Wells, editor of the Phrenological Journal and Life Illustrated. New York. 12mo., 72 p. Price 25 cents.

It contains short essays written in a popular style, on subjects indicated by its title.

Fireside Science. A series of popular scientific essays upon subjects connected with every-day life. By James R. Nichols, A. M., M. D. New York: published by Hurd & Houghton. 1872. 283 pages.

This handsome volume contains twenty-three essays, most of which have appeared in the columns of the "Boston Journal of Chemistry," but have been revised and partly re-written before publishing them in their present garb. The aim of the author, to present some of the facts of science in their bearing upon hygiene, the arts, agriculture, &c., in a way to interest and instruct those who gather by the fireside, and those who labor in the workshop and the field, has been successfully carried out, abstract reasonings and technicalities being carefully avoided, while on the other hand the statements are presented in a brief, natural and lucid manner, which is sure to interest the intelligent reader. Occasionally the descriptions are very graphic; the paper, "Among the Coal Miners," for instance, cannot fail to be specially appreciated by those who have passed up the picturesque valley of the Lehigh to enter into the valley of the Susquehannah below Wilkesbarre, although it can scarcely do justice to the beauties presented at every step, notwithstanding the scenery is depicted with evident delight.

An intelligent reader is sure to derive useful instructions and sound views upon many subjects from a perusal of this volume, even if he does not believe in the kind of vitalizing capability which the author thinks is inherent to the excrementitions salts found in the manure heap.

Announcement of the Spring Course of the Rush Medical College, Chicago. The building of this College was destroyed by the great fire last fall; the Faculty have secured the lecture and clinic rooms of the Cook county hospital, corner 18th and Arnold Sts., to commence on March 6th, the usual Spring Course, which will continue sixteen weeks.

OBITUARY.

Joseph Arnold, a student of the Philadelphia College of Pharmacy, died in this city, Feb. 14th, having nearly completed his 21st year. The deceased was a son of Dr. Arnold, of Hazleton, Pa., in whose office he first acquired a love for pharmacy. In 1868 he came to this city and engaged with Mr. C. E. Haenchen to learn the business. Early in February he was taken sick with a disease of the spine, which attack proved fatal. While attending his first course during the past session, he was an attentive student and well liked by the members of his class.

Joseph M. Hindmeyer, a student of the Philadelphia College of Pharmacy, we are informed, died of typhoid fever, on Sunday, the 18th inst.

Charles Shoemaker, a graduate of the Philadelphia College of Pharmacy, Class 1866, was drowned near Wilmington, Del., on February 1st. The following communication, regarding his death, has reached us:

The Executive Board of the Alumni Association, have heard with regret the death of Mr. Chas. Shoemaker, of the class of 1866, which took place on the afternoon of Feb. 1st, while skating on the Christiana Creek.

Mr. Shoemaker was a native of Germantown, Pa., a son of Benjamin Shoemaker, a teacher for many years in that place. He was regularly educated in the drug and apothecary business, and graduated in 1866; he removed to Wilmington, Del., a few years since, and had established a thriving business; his urbanity and ability had secured him many friends among those whose intercourse he enjoyed, and his sudden death, at the age of 25 years, has saddened those who had met him either on business or in social life. His death, however, did not find him unprepared, for he had the well grounded hope of a blissful immortality.

Thos. S. Wiegand, R. M. Shoemaker, E. D. Paxson, *Committee.*

Mr. Lecanu, Professor at the École de Pharmacie and member of the Board of Health of Paris, France, died in that city in December last.

VOL. XLIV.] [NO. IV.

AMERICAN JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] APRIL, 1872. [VOL. II, NO. IV.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

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THE

AMERICAN JOURNAL OF PHARMACY.

APRIL, 1872.

ON THE FRUIT OF MAGNOLIA TRIPETALA.

BY WALLACE PROCTER.

An Inaugural Essay.

Among the numerous trees which are embraced in the flora of North America, none are more interesting as a group than those belonging to the natural order *Magnoliaceæ*, and especially those of the genus *Magnolia*.

The chemical relations of the several species of *Magnolia* have been but partially examined; the species *glauca* and *grandiflora* only having been submitted to analysis. In the following essay an attempt has been made to isolate the principal chemical constituents of the species *tripetala* or umbrella tree.

According to Dr. Wood (U. S. Disp.), this is a small tree, sometimes, though rarely, reaching an elevation of thirty feet and almost always having an inclined trunk. It is remarkable for the size of its leaves and flowers. The former are eighteen or twenty inches long, by seven or eight in breadth, thin, obovate, somewhat wedge-shaped, entire, acute at both extremities, pubescent when young, and often disposed in rays at the extremities of the shoots, displaying a dome-like surface thirty inches in diameter. Hence has arisen the name "umbrella tree," by which this species is distinguished. The flowers are terminal, seven or eight inches in diameter, white, with from five to twelve oval acute petals, of which the three outer are reflexed.

Michaux says that the umbrella tree, first seen in the northern part of the State of New York, is multiplied further south in the valley of the Susquehanna, but is most abundant in the Carolinas, Georgia and Tennessee. It prefers a deep soil and a shady locality. The fruit

is cone-shaped, from three to five inches in length, and one and a half to two inches in diameter; its green color changes to a beautiful rose color in the autumn.

This fruit is a compound succulent capsule, consisting of numerous dehiscent carpels, arranged in a sort of imbricated spike, in each of which is a red seed attached to the carpel by a silky thread; these, when the carpels dehisce, fall out and remain suspended. The seeds are red, irregularly shaped, somewhat flattened and angular, and quite bitter and acrid when chewed, and consist, when fresh, of a soft outer portion, with smooth epidermis and a soft oily kernel enclosed in a hard shell.

The fruit used in the first experiments was gathered September 7th, 1871, from a tree about twenty feet high, growing in the vicinity of Mt. Holly, N. J., while yet unripe; it was purplish colored and fleshy.

On grating, the firm juicy exterior was removed, exposing the seeds and cellular structure of the capsule beneath. About three weeks later the remainder of the ripe fruit was collected, when most of the carpels were opened with the seeds yet attached.

Experiment 1.—A quantity of the fresh capsules, deprived of the seed, were sliced and macerated in alcohol 95 per cent. for five days, the tincture filtered, and the alcohol recovered by distillation with a water-bath still, leaving a reddish-brown, semifluid, resinous extract with a separate watery portion. This extract was set aside for several days, until a deposition of crystals occurred, when the dark mother liquid was drained off and set aside; it solidified after a time by the formation of other crystals of the same kind.

This crystalline matter was found to be readily soluble in alcohol, ether and chloroform, but owing to the fact that the resin was also taken up, it was difficult to purify. Seeking to overcome this difficulty, I tried purified commercial benzine, and was gratified to find that it would dissolve the crystals without acting much on the resinous and coloring matters of the fruit and seeds.

The black crystalline mass was then digested in boiling benzine, and, on cooling, the filtered solution deposited the crystals almost pure, and quite free from coloring matter. A quantity of the dried capsules, deprived of the seeds, was powdered, exhausted with alcohol of 95 per cent. by percolation, and the tincture allowed to evaporate spontaneously. The dark brown soft extract resulting was well washed with hot water, dried and treated with boiling benzine repeatedly

until exhausted, and the solutions permitted to evaporate spontaneously, when colorless crystalline matter separated, like that from the fresh capsules, with some soft rèsin dissolved and precipitated.

Experiment 2.—A quantity of the seeds were macerated in alcohol of 95 per cent. for six days, the tincture filtered and allowed to evaporate spontaneously. A dark brown semi-fluid extract resulted, which, on standing, became charged with numerous crystals. The whole was then subjected to pressure between bibulous paper until the dark fluid portion was absorbed, and the crystals, yet impure, were left on the surface. These were treated with hot benzine, which yielded them in a pure colorless condition on cooling and by evaporation. The paper containing the absorbed dark portion was treated with ether, and the ethereal solution evaporated. This extract, by treatment with benzine, gave additional quantities of the crystals.

Experiment 3.—A tincture, made from the bruised seeds, was boiled with magnesia, as in the process for *liriodendrin*, until the color became grayish brown, and filtered hot, evaporated to one-third, mixed with three times its bulk of water, and set aside. After standing several days a few crystals were deposited.

Experiment 4.—Another portion of the tincture of the seeds was boiled, with the addition of some hydrate of lime, for half an hour, until the mixture assumed a greenish brown color. It was then filtered, evaporated and thrown into water as before. The yellow turbid liquid was set aside for several days, when numerous flattened, acicular crystals of a light amber color, from a quarter to half an inch in length, studded the sides and bottom of the vessel and floated on the liquid. These crystals were free from lime, were destroyed by heat and soluble in benzine.

The several crystalline products obtained in the preceding experiments from the capsules and seeds separately treated, appear to be the same substance when carefully recrystallized from benzine. In the fruit this substance is intimately associated with a soft resin possessing considerable acrimony, and it has been observed that the purest crystals have the least acrimony. The taste is at first feeble from its insolubility, but when swallowed, after a time an irritation of the fauces is produced—an effect noticed at once when the alcoholic solution is tasted.

When the impure crystals are tasted, the impression on the tongue is almost painful, and the choking sensation is immediate. When

pure, the crystals have no odor, but that of the impure resembles the fruit.

The *crystalline form* varies with the manner of obtaining it; when it separates from a mixed alcoholic and watery liquid, or by the cooling of a hot aqueous solution, it is in slender needles sometimes terminated with two faces; others are acicular. When it crystallizes in the resinous extract from the slow evaporation of the tincture, the form is that of a flattened four-sided prism with dihedral terminations.

But when it has been purified and recrystallized by slow evaporation from a solution in benzine in a deep vessel, they are in flat, four-sided prisms, terminated at each extremity by two planes, so as to give them the aspect of elongated hexagonal tables. A close examination of a number of the thicker crystals showed them to consist of several superimposed slates, with many of the terminal planes rounded, giving a shuttle-like form to the crystal. Without being able to determine the question, there is some probability that the form belongs to the *square prismatic* system, as many of the fractured crystals exhibit rectangular fissures.

This substance is nearly insoluble in cold water, but after being boiled with the crystals, water deposits a few minute needles. It is very soluble in alcohol, ether, chloroform and carbon bisulphide, and in benzine (light petroleum oil), especially when heated; quite soluble in fixed oil, and, to some extent, in hot glycerin, from which it partially separates, on cooling, in crystals. It is neutral to test papers.

When distilled to dryness with strong liquor potassæ, no ammoniacal odor is manifested. Solutions of potassa and soda dissolve it, and yield it unchanged in an amorphous form by saturation with an acid. Diluted acids appear to have no chemical effect upon it hot or cold. When the crystals are dropped on strong sulphuric acid they are colored red, and the acid itself becomes reddish, but the crystals do not lose their shape until heated, when they are destroyed with the evolution of sulphurous acid. Strong nitric acid turns them brown, forming a resinous mass, which is destroyed by heat with red fumes. Hydrochloric acid (sp. gr. 1·16) does not attack this substance hot or cold.

Iodine in substance added to the crystals does not affect them, nor when heated in a watch glass, nor does any reaction occur when a drop of tincture of iodine is added to a solution of the crystals in alcohol.

The crystals fuse in boiling water; when they are placed on the surface of mercury, having a thermometer immersed in it, and a gradual heat applied, they were found to fuse at 180° F., and not to re-crystallize when the temperature falls; when the heat reaches 250° to 260° F. white vapors are evolved, which at 300° to 320° F. are abundant, and cause coughing when inhaled. When the crystals are heated between two watch glasses the vapors condense in minute transparent globules, like oil, which readily dissolve in alcohol, and are obtained in crystals by its evaporation; only a part of the substance can be thus obtained—at least one-half of it remains as a hard transparent resin. When the heat is increased to redness this is consumed without residue.

Prof. Emmet, of the University of Virginia, published a paper on *Liriodendrin*, the bitter principle of the bark of the tulip poplar (*Liriodendron tulipifera*), in April, 1831 (see *Jour. Phila. Coll. Pharm.* iii. 5) in which he describes minutely the characters of that substance. He says it exists in an amorphous (resinoid) condition, and a hydrated or crystalline form, that it cannot be crystallized from its hot concentrated, alcoholic solution, the liriodendrin separating as a transparent varnish.

When water is added till the alcoholic solution becomes pearl white and the temperature is kept at 40° to 50° F., crystals are obtained by spontaneous evaporation; these have different forms—rhomboidal plates, plumose or stellated prisms, and scales like boracic acid. It may be washed with cold acid and alkaline solutions without any loss.

When gently heated, the crystals fuse, slightly effervesce (owing to the escape of water), and then become olive colored and amorphous. The alcoholic solutions of both varieties possess an intensely bitter taste, and leave an impression of heat upon the tongue. Crystallized liriodendrin is brittle, inodorous, fusible at 150° and volatile at 270° F., but only partially sublimable. Caustic potassa in strong solution boiled with the crystals appears to convert them into oxalic acid, which distinguishes liriodendrin from the resins. Cold concentrated muriatic acid has no action on it, but when heated it effervesces, and assumes a deep emerald green color. Iodine imparts to the crystals by contact immediately a bright chrome yellow color, and forms an insoluble grass-green compound, which is instantly decomposed by nitric acid.

Dr. Stephen Procter, in an essay on the bark of *Magnolia grandi-*

flora (*Amer. Jour. Pharm.* xiv. 89,) describes a crystalline body discovered in that bark, which he found analogous to liriodendrin in its fusing point, volatility and solubility, but less bitter.

W. D. Harrison, by an analysis of the bark, leaves and fruit of the *Magnolia glauca* (*Amer Jour. Pharm.* xxxiv. 29), found the crystalline substance of Dr. Procter in the bark, but was unable to detect it in the fruit—a want of success probably due to the use of solution of potassa as a menstruum.

By comparing the statements of Prof. Emmet with those now obtained, it must be evident that the crystals from *Magnolia tripetala* are *not* liriodendrin, though an analogous body.

The reactions of these substances with muriatic acid, caustic potassa and iodine are quite different, and the bitterness of the *Magnolia* crystals is much less marked than the other.

At this stage an opportunity to examine the fresh bark of Liriodendron *root* was afforded. A portion was exhausted with alcohol of 95 per cent., and evaporated to a soft extract. This, when treated with a solution of potassa (1 part to 256), gave the putty-like mass described by Professor Emmet, extremely bitter and totally different in taste from the crystals obtained of *Magnolia.* When dissolved in alcohol, and water added till milky, crystals were not obtained in the short period allotted for the experiment. When treated with benzine like the *Magnolia* extract, crystals were not formed, the liriodendrin separating in transparent globules, of a yellowish color, and persistently acrid and bitter taste.

Under these circumstances the principle now described, which is presumed to be identical with that found by Dr. Procter and Mr. Harrison in two distinct species, is entitled to be called *Magnolin.*

Experiment 5.—When the soft, resinous matter from the capsules, which has been exhausted with benzine, is dissolved in alcohol and treated with subacetate of lead in excess, it partly precipitates, in combination with oxide of lead, the other part remaining in solution. By washing the precipitate first with alcohol and then with diluted acetic acid, the resin is separated, and after washing with water and dried, is perfectly tasteless and of a dark brown color, no odor and burns with a sooty flame, leaving a bulky charcoal residue. It is brittle and hard. The alcoholic liquid from which the resin was precipitated was mixed with a slight excess of sulphuric acid to remove

the lead, filtered, evaporated to dryness, washed with water and dried. The soft resin thus obtained had a pungent taste when chewed, and was readily soluble in alcohol. The alcoholic extract of the bruised seeds contains some fixed oil, to which its softness is partially due. The amount of resinous matter is smaller than in the capsules. When the kernels are separated from the shell of the seed, and pressed, a bland yellow fixed oil is obtained. The activity of the seeds resides in the exterior tissues.

Experiment 6.—The watery portion that separates from the resinous extract when the alcohol is nearly dissipated, in evaporating the tincture, contains *glucose,* as it readily reduces oxide of copper in Trommer's test. When it is evaporated to dryness, a mixture of granular crystals of sugar and crystals of magnolin is obtained, very pungent to the taste.

Experiment 7.—The dried capsules, deprived of seeds, were boiled in water to obtain a brown cloudy decoction, which was strained, being too gummy to filter through paper. It afforded no precipitate with gelatin, was not affected by tincture of iodine, but sesquichloride of iron caused a brown gelatinous precipitate. It was precipitated by acetate of lead, and afterwards copiously by subacetate. It was also precipitated by nitrate of silver.

Experiment 8.—The recent fruit has a somewhat aromatic odor when bruised. Six ounces of the fresh capsules were well sliced and placed in a distillatory apparatus with half a gallon of water, and heat applied by sand-bath until a quart of distillate was obtained. This was slightly milky, with patches of an oily nature floating. The distillate had the odor of the fruit without its pungency, and contained a small portion of *volatile oil.* No attempt was made to determine the inorganic constituents of the fruit.

In conclusion, it may be inferred from the preceding experiments and their results, that the fruit of *Magnolia tripetala* contains a *crystalline* (resinoid) *principle* analogous to liriodendrin, a *solid resin* precipitable by subacetate of lead, a *soft, pungent resin* closely allied to the crystalline principle, *fixed oil, volatile oil, gum* and *glucose.* No investigation was made for acid present or coloring matters.

A NEW SOURCE OF POTASH SUPPLY.

By Herbert Hazard.

An Inaugural Essay.

The present sources of the potash supply are rapidly failing; every year the area of the supply becomes smaller, and the product, in consequence of this and the increased demand, becomes more and more expensive. At the rate the country has been settled and the woods destroyed for the past ten or fifteen years, the source of supply in the United States will, in a comparatively few years, almost entirely fail. States which, a few years since furnished large quantities of ashes, now furnish none; wood has become too valuable in the arts to be burned even for fuel. The people as well as the Governments, in the older States, have commenced to discuss the ways and means of perpetuating their hard-wood forests, both as a protection to the land and for mechanical purposes. Soft woods do not yield enough of the salts to pay for working their ashes; hence we are driven to the newly-settled portions of the West and Northwest for our present supply, the largest portion of which comes from Michigan and Wisconsin, where the trees are cut down and burned as the readiest means of clearing them from the land. But as the population of these States is rapidly increasing, and railroad lines are being proportionately extended, the forests are brought into more direct communication with the lakes and large cities, thus finding a market for their timber; and the saw-mill will then use up all the surplus trees, which will go into commerce as lumber instead of ashes, as at present; these causes will very much reduce, if not wholly terminate, the present supply from the Northwestern as they have from the Eastern States.

The forests of the Old World, by care and cultivation, still furnish large quantities of potash, but never sufficient for home consumption, therefore this source of supply is not available to us; again, the demand for these salts is constantly increasing, both in medicine and in the arts, two more very cogent reasons why a never-failing source of supply should be secured.

This, it seems, can be accomplished in the following manner: Throughout the Western States large quantities of corn are produced, the cobs of which are now considered of little or no value, yet they may share the same fate as many substances which, though formerly considered worthless, have become new mines of wealth through the aid of chemistry. By the following assays and comparisons, I propose to demonstrate their value to pharmacy and the arts.

One hundred parts air-dried cobs yield, after drying at 212° Fah., the following results :

	Cobs.	Ashes.	KCl.	$K_2 CO_3$.	Silica, Charcoal, Lime, Iron.	Loss.
1st,	91·70	1·120	·820	·750	·140	·230
2d,	90·95	1·040	·805	·745	·180	·115
3d,	92·85	1·015	·840	·755	·245	·005
4th,	90·94	1·115	·830	.795	·300	·020
Averaging,	91·61	1·072	·824	·762	.217	·093

Or, one hundred parts dried at 212° Fah., give the following results :

	Ashes.	KCl.	$K_2 CO_3$.	Silica, Charcoal, Lime, Iron.	Loss.
1st,	1·221	·894	·818	·150	·253
2d,	1·143	·885	·819	·192	·132
3d,	1·093	·904	.834	·252	·007
4th,	1·226	·913	·874	.329	·030
An average of	1·171	·899	·836	·230	.105

The cobs were incinerated as thoroughly as possible without the use of nitric acid or other oxidizing agent, the presence of silica impeding the complete combustion of the charcoal. The ashes were assayed by exhausting them with water and filtering off the soluble portion, leaving a residue on the filter consisting of silica, charcoal, carbonate of lime, and a trace of iron. The filtrate was supersaturated with muriatic acid, evaporated to dryness and redissolved in acidulated water, leaving an additional quantity of silica, which was added to the first portion and weighed with it. The solution was then evaporated to dryness and weighed as chloride of potassium, and from this weight the carbonate was calculated.

In volume 4th, Watt's Dictionary of Chemistry, the results of some analyses by Höss are given, from which it appears that ash, oak, elm and willow, which of our most common forest wood are richest in potash salts, yield respectively ·74, 1·50, 3·90 and 2.85 parts carbonate potash in one thousand of wood.

The average yield of one thousand parts of cobs, as shown by the tables above, is 7·62 parts carbonate potash, or nearly twice as much as the best specimens of wood, and from a material which can fill its

full measure of usefulness for other purposes before it comes into the hands of the manufacturer of potash.

But the questions may be raised, how can these cobs be collected in quantities sufficiently large to pay for working them, and is the supply sufficiently large to be of any commercial importance? The first question is easily answered, for they are already collected at the shipping points of the growing districts, where large shelling mills, capable of running through 500 bushels ears of corn an hour, are established; here, then, are the places where a supply of cobs may be procured. The figures below will show with what rapidity they accumulate.

A bushel of corn weighs 70 pounds on the cob; a bushel of shelled corn weighs 56 pounds, leaving a balance of 14 pounds cobs to the bushel; and a mill, shelling 500 bushels an hour, turns out 7,000 pounds cobs an hour, or equal to 70,000 pounds per working day of ten hours. As many of these cobs as are necessary are used for the purpose of generating steam to run the shelling-mills; the surplus is sold, given away or even cast out into waste places to decay. By collecting the ashes from these waste cobs, together with the ashes from the furnaces, it will be readily seen, by reference to the preceding analyses, what large quantities of potash salts may be produced from these now worthless cobs.

That the supply of cobs can never fail, the following statistics will show:

The corn crop of the United States, for 1870, was 1,094,000,000 bushels, of which amount

Illinois yielded	201,378,000	bushels.
Indiana "	113,150,000	"
Missouri "	94,990,000	"
Iowa "	93,415,000	"
Making a total of	502,933,000	"

in four States alone.

The corn crop of the whole country, for 1871, was 1,100,000,000 bushels, which, at 14 pounds cobs to the bushel, will yield 15,400,000,000 pounds, or 7,700,000 tons cobs, containing an average of three-quarter per cent. pure carbonate potassa. We have the enormous quantity of 115,500,000 pounds of that valuable alkali lost to commerce annually, which, if thrown into trade, would add very largely to the general resources of the country.

ON COTTON SEEDS.

By Horatio N. Fraser.

From the Author's Inaugural Essay.

From the time when cotton was first cultivated in this country until within a few years, the lint or fibre was the only part used either in medicine or the arts; the seed, or all that part not used for re-planting, was considered as having no value, and was looked on only as an incumbrance. Since these seeds weighed nearly twice as much as the part formerly used, it became the subject of thinking men's experiments—how they could be turned to some use; and the results of these experiments have lead to the discovery and subsequent usage of the various products obtained therefrom.

A chemical analysis of the seeds demonstrated that a large per centage of a fixed oil could be produced from them, and not only that, but that the kernel might be advantageously used for food for animals. This latter was tried some years ago, but led to bad results; for even the best gins which were invented could not separate the lint entirely from the seeds to which it adhered, consequently this insoluble matter, with the hulls, formed hard masses in the stomach, and produced even fatal effects from the irritation of the membranes of the intestines. But, to obviate this, hullers have been made which decorticate, or remove the hull, with the adhering lint, entirely from the kernel. This is almost an invaluable invention for the planter; for, when we consider the millions of pounds of cotton which are annually produced in the Southern States, and also that the weight of seed is double the weight of the other portion, then we may be able to estimate the value of these seeds, turned into nutritious food for stock, to those who formerly wasted them, and were forced to buy what these now furnish.

Since small hullers have been introduced on many of the plantations, the planters are enabled to hull their own seeds. These are thrown into the top of the hullers, and first come in contact with knives, which cut the hull; then they are passed through sieves, by which process the kernel and hulls are separated. The kernel is divided into two portions; the first is that part which has been broken or cut by the knives; this is ground to make the meal used for feeding, and constitutes one third of the whole weight of kernel. The remaining two-thirds come out whole, and are sold for other purposes. This meal has been found to be as rich in flesh and fat producers as linseed

meal for stock, and supersedes the use of it in the cotton-growing States. The hulls are piled in heaps until they arrive at the right state of decomposition to be used as a fertilizer, for which they are well adapted, being rich in the phosphates and lime, characteristic of substances used for this purpose. The seeds contain a fixed oil to the amount of about thirty-seven per cent. of the weight of the kernel, most of which is obtained by expression.

At the factory on Long Island, which the writer visited, the seeds are bought with the hulls on, although the whole kernel is generally bought directly from the planter. These are first thrown into a gin, which separates some more of the lint. This is packed in bundles and sold for ordinary cotton batting. From this they are conveyed to the hullers and undergo the decorticating process. The kernel is then carried by an elevator to a box, which feeds two large iron rollers, converting it into meal; the meal is put into a large vessel heated by steam, to render the oil more fluid, and then is put between iron plates, which are forced together by hydraulic pressure, which presses out nearly all the oil and some mucilage. About eight per cent. of oil is left, which cannot be removed except by solvents. This oil, as then obtained, is of a handsome dark wine color and sweet taste. This then undergoes the purifying and bleaching process, which is kept a secret by the manufacturers.

The purified oil is either a golden yellow or white color. An oil is also produced by chilling the purified oil, and expressing, to obtain a variety almost free from stearine, called by the manufacturers "winter oil," from the fact that cold will not thicken it.

This oil is used extensively in the arts, chiefly to adulterate and substitute higher priced oils. Cheap paints are ground in it, and it is used to a certain extent to adulterate linseed oil. But, being a non-drying oil, only a small per centage could be used.

It is also used for adulterating sperm oil for burning, and for mixing with lard oil. The most practical way to detect these is to heat the suspected oil with distilled water; separate the water and add a solution of subacetate of lead. If it contained cotton-seed oil, a white precipitate will be formed, on account of the presence of mucilage, which is always found in this oil.* If the sperm or lard oil is pure, it would be indicated by the absence of any milkiness.

* Even after it has been purified? Ed. Am. Jour. Pharm.

It is also used to adulterate olive oil, and chemistry has found no practical mode by which they can be definitely distinguished apart.

A soap has been made of the residue left after refining. It is of a more or less dark brown color, and disagreeable smell. It is used in the laundry, and sells from three to seven cents a pound, according to quality. It was also attempted to make a soap from the white oil. This, when first manufactured, is of a handsome white color, but after standing some length of time it becomes dark, and finally almost black. It is not made now.

It is used to the amount of ten per cent. in making fancy soaps, to give them a good lather, for which the oil is said to be the best known; but even in this small amount the odor of the rancid oil can be detected.

The hulls are used for fuel in the factory, and the greater part of the cake meal was sent to Europe, the farmers of this country, at that time, not being generally acquainted with its properties. It sold for about thirty dollars a ton.

A few years ago, the oil was noticed in the journals in connection with preparations of pharmacy, to be substituted for oils in liniments and ointments, for which it is adapted by its properties as an emollient, but nothing definite was arrived at. Being cheaper than even the commonest grades of olive oil, and resembling it so much in its behaviour, it is peculiarly fitted for the preparations of the pharmacopœia in which the olive oil is used. Mixed with aqua ammoniæ in the officinal quantities for "Liniment. Ammoniæ," it makes a product which has all the essential properties that are indicated by the olive oil, and has the advantage of not forming so thick a mixture, thereby making it more convenient. In the "Lin. Camphoræ," it seems to serve exactly the same purpose as the officinal oil.

Lead plaster made with the cotton-seed oil has been substituted with advantage for the officinal, and has been used to mix with it to the amount of fifty per cent. by some manufacturers of the plaster. This, made with the cotton-seed oil alone, forms a handsome, light colored plaster, apparently equal in all respects to the English, with the exception that it does not become hard enough to keep its shape, in the usual form of selling it. But when mixed with olive oil in equal proportions, this difficulty is entirely overcome.

The cost of the plaster made with the cotton-seed oil, using the best English litharge, is twenty cents per pound. This difference in the

cost, combined with the practicability of using it, will recommend it to the more careful examination of druggists who deal extensively in this preparation.

ON THE AMOUNT OF MOISTURE CONTAINED IN AIR-DRY DRUGS.

By Geo. W. Kennedy.

Read at the Pharmaceutical Meeting, March 13th, 1872.

How many pharmacists would believe it if informed that the drugs which they are daily handling contain from 10 to 18 per cent. of moisture, which they lose in drying? I myself could scarcely credit it when my first experiments were made, and thought I might have lost some of the drug between the repeated weighings, but repetition of the experiments always confirmed the results previously obtained. Even the powders, which are supposed to be dry or very nearly so, lose in some cases from 8 to 10 per cent. of moisture.

I have experimented with a large number of drugs, sufficient, I believe, to give the pharmacist a true idea of the amount of moisture contained in them, and the results show conclusively that such pharmaceutical preparations like syrups, tinctures, fluid extracts, &c., must be much weaker when prepared from merely air dry material than when made from anhydrous drugs.

The process of drying was conducted in a common cooking stove oven, at a temperature of about 120° Fahrenheit, to which the drug was exposed until it ceased losing any more weight. By being exposed to a low but continuous heat the loss in volatile oil may probably be greater than when the drug is dried at an elevated heat, but its normal amount is very small in most of the drugs experimented with, so that the deduction of the volatile oil expelled in drying would alter the figures below but little.

The dried drugs were placed in a room for two weeks and then reweighed, the increase of weight representing the amount of moisture reabsorbed in that time. While these experiments were made the weather was cold and dry, and this circumstance doubtless accounts for the smaller percentage absorbed again, while in a few cases the loss of volatile oil may explain a portion of the deficiency.

The following tables show the loss sustained by the drugs mentioned, and the gain in weight of the dried articles under the circumstances mentioned above:

1. Roots, Rhizomes, &c.

	Loss.	Yield.	Gain by re-absorption.
Lappa,	16·25	83·75	10·40
Calumba,	16·	84·	11·50
Taraxacum,	15·25	84·75	9·75
Asclep. tuberosa,	15·25	84·75	10·75
Cypripedium,	14·	86·	5·
Gentiana,	13·	87·	9·
Panax,	12·75	87·25	4·75
Krameria,	12·67	87·33	9·17
Polygonatum,	12·60	87·40	6·80
Scilla,	12·50	87·50	8·50
Althæa,	12·50	87·50	8·50
Gossypium,	12·40	87·60	6·40
Helleborus niger,	12·	88·	8·25
Colchicum,	11·50	88·50	8·
Inula,	11·40	88·60	6·40
Rheum,	11·33	88·67	8·33
Spigelia,	11·25	88·75	7·25
Podophyllum,	10·33	89·67	6·73
Serpentaria,	10·33	89·67	5·83
Senega,	10·30	89·70	5·67
Asarum canad.,	10·25	89·75	3·85
Valeriana,	10·20	89·80	6·
Sarsaparilla,	9·	91·	4·50

2. Stems and Wood.

	Loss.	Yield.	Gain by re-absorption.
Dulcamara,	12·	88·	6·33
Quassia,	10·	90·	8·

3. Barks.

	Loss.	Yield.	Gain by re-absorption.
Rhus glabrum,	14·67	85·33	8·67
Xanthoxylum,	14·50	85·50	8·50
Cinnamomum,	10·50	89·50	6·50
Prunus Virg.,	10·	90·	5·25
Cinch. calis.,	9·	91·	2·80

4. Herbs.

	Loss.	Yield.	Gain by re-absorption.
Absinthium,	14·	86·	8·50
Hedeoma,	12·25	87·75	8·25
Lobelia,	11·60	88·40	5·60
Leonurus,	10·80	89·20	5·20
Glechoma,	10·33	89·67	6·33

5. Leaves.

	Loss.	Yield.	Gain by re-absorption.
Uvularia perfol.,	18·	82·	8·
Conium,	16·	84·	6·
Cataria,	14·50	85·50	11·50
Aconitum,	14·	86·	9·25
Belladonna,	13·75	86·25	5·75
Hyoscyamus,	12·25	87·75	5·85
Senna Alexand.,	12·20	87·80	7·20
Melissa,	11·75	88·25	7·80
Matico,	11·	89·	6·
Tussilago,	10·50	89·50	4·67
Salvia,	10·50	89·50	8·
Stramonium,	10·33	89·67	7·83
Rosmarinus,	10·25	89·75	6·65
Uva ursi,	10·	90·	4·
Buchu,	9·20	90·80	4·40

6. Flowers.

	Loss.	Yield.	Gain by re-absorption.
Lavandula,	14·25	85·75	7·75
Arnica,	13·80	86·20	8·80
Anthemis,	9·80	90·20	6·80

7. Seeds.

	Loss.	Yield.	Gain by re-absorption.
Stramonium,	10·	90·	7·

8. Powdered Drugs.

	Loss.	Yield.	Gain by re-absorption.
Rheum,	8·25	91·75	5·25
Inula,	8·33	91·67	5·30
Calumba,	8·50	91·50	7·
Colchici Rad.,	9·	91·	6·
Sanguinaria,	9·	91·	7·
Cimicifuga,	9·80	90·20	4·80

Pottsville, Pa., March, 1872.

TO DETECT SULPHURIC ACID IN VINEGAR.

By James T. King.

The salts of barium are far too delicate a test for free sulphuric acid in vinegar. When it is made by the oxidation of alcohol, the water used for diluting the spirits, in many localities, contains sufficient sulphate of lime or other sulphates to give a decided reaction with chloride barium, and if the vinegar be made from cider, it will generally give evidence of the presence of a sulphate with this test, even when the sample is pure and free from the usual adulteration.

The following process will detect the five-hundredth part of free sulphuric acid, and is sufficiently accurate for all practical purposes.

An ounce of the vinegar to be examined is put into a small porcelain capsule, over a water-bath, and evaporated to about half a drachm, or to the consistence of a thin extract; when cool, half a fluidounce of stronger alcohol is added and thoroughly triturated. The free sulphuric acid, if present, will be taken up by the alcohol to the exclusion of any sulphates.

Allow the alcoholic solution to stand several hours and filter; to the filtrate add one fluidounce of distilled water, and evaporate the alcohol off by gentle heat, over a sand-bath; when free from alcohol it is set aside for several hours and then again filtered.

To the filtrate, acidulated with hydrochloric acid, add a few drops of a solution of chloride barium, and a white precipitate of sulphate of barium will result, if the sample of vinegar has been adulterated with sulphuric acid.

Middletown, N. Y., March, 1872.

TINCTURA OPII, U. S. P.

By Allen Shryock.

Read at the Pharmaceutical Meeting, March 19th, 1872.

Allowing the opium to be wholly exhausted of its active principles, one grain would be represented by $12\frac{8}{01}$ minims of the tincture, according to the U. S. formula; but a minute quantity of morphia has been detected in the residuary matter, so that the tincture is rather weaker than the proportion of opium employed would indicate. To determine this difference, though slight, would be of interest.

Powdered opium was analyzed, and found to yield $13\frac{21}{100}$ per cent. of morphia, giving 3171 grains in 50 troyounces; this quantity being converted into 40 pints of tinctura opii, U. S. P., the dregs of the same were analyzed, and found to contain 13 grains of morphia, upon which data we may readily calculate the loss as represented by morphia. Assuming the amount of morphia contained in the powdered opium to be represented nominally by 100 per cent., the amount of morphia retained in the dregs (13 grs.) will be represented by ·40996, or approximately $\frac{2}{5}$ of one per cent. Therefore $12\frac{8}{10}$ minims of tincture of opium in strength equals 1 grain of powdered opium less $\frac{2}{5}$ per cent., or $\frac{996}{1000}$ gr., and 1 grain of powdered opium in morphia strength equals $12\frac{85}{100}$ minims.

With this slight difference, however, $12\frac{8}{10}$ minims of the tincture

may even represent more than 1 grain of powdered opium in therapeutic action, though lacking slightly in strength, from the fact of its being in a more diffusible state.

$\frac{66}{100}$ of the opium used was taken up by the menstruum, and each fluidounce of the tincture contained 4·93 grains of morphia.

The residues left in making Galenical preparations are always more or less charged with traces of their active principles. The proper menstrua and mode of preparing them presents a wide and interesting field for investigation.

ELEGANT PHARMACY.

"Nunquam non paratus."

The above not inapplicable term, "*Elegant Pharmacy*," has been frequently brought to my notice, and demanded from me considerable attention as a subject worthy of consideration and study by all practitioners of this now fast advancing science. I have been more particularly attracted by it of late, not only by the vast strides that have been made in the development of the science, but as well by the existing fact of the great increase in the numbers of the practitioners and votaries of one distinct branch of the art known as homœopathic pharmacy. With them, in my mind, elegant pharmacy is one of the great causes of their increase and success. Without granting them to be on equal grounds with regard to the virtues of their preparations, or that their infinitesimal deductions are a reality, and their theory a correct one, we of the old school cannot but admire the tasteless, agreeable, non-nauseating doses they administer—the elegant pharmacy they display in their medicinal preparations.

That this course might be more closely followed by allopathic pharmaceutists is, I think, practical, and needs only the aid and unison of action on the part of the allopathic physician with the pharmacist.

The homœopathic physician is, with but few exceptions, a dispenser as well as practioner; his remedies are in almost every case special preparations, always ready for his use. With the allopathic physician it is different; he depends on the pharmacist for the compounding of his formula. The knowledge of medicine is only one of the many branches with which the physician must of necessity be familiar. The virtues, powers and actions of the different remedial agents brought to his notice, form part of the study of his profession, but

the art of choosing, preserving, preparing, combining, disguising and dispensing these remedies rests with the pharmaceutist. He it is the physician holds responsible for the quality and efficacy of his remedial agents; and surely with such a responsibility there should exist some bond of fellowship between them. What physician is not pleased to find the result of the administration of medicine to have been successful, and hear from the lips of his now convalescing patient such words as these: "Oh, doctor, I am so much better, and your medicine was so easy to take, so agreeable." To whom is he indebted for this compliment (powerful in a pecuniary as well as professional point of view)? To him who, by his skilful manipulation, had so disguised the perhaps nauseous properties of the drug he had ordered that they were not tasted, and at the same time preserved the active properties, so that they had successfully performed their functions in the suffering system.

Though great advances had been made, in the past decade of years, in the art of dispensing, a vast field for improvement is still open to the students and practitioners of the art. Many, very many of the active remedial agents in daily use by physicians are nauseous and disagreeable to the taste, and [many patients shudder at the thought of the doctor's visit (not the doctor), because they fear the disagreeable dose it may be necessary for him to order them.

To lessen the number of these bugbears of the sick and ailing is the work of the pharmacist; to hide and disguise these disagreeable tastes and odors, and yet preserve the power and efficiency of the remedy, is what I call *elegant pharmacy.*

Cannot a great deal be done to further this cause by a greater unity of action on the part of those interested in it? I think so. I would suggest also the abnegation of secret formulas. What is advantageous for one should be for all, especially with regard to such things as remedies for suffering humanity. Improvements should be for the universal benefit, not for the mere financial advantage of the improver. A more liberal policy towards one another will go far to aid in the advancement of the science of pharmacy, and bring about a much more healthy and active condition of the art. With a correct knowledge of chemistry, botany and materia medica, we should couple elegant pharmacy, so that our compounds will rival, if not excel, homœopathy in their simplicity, beauty and adaptability. MEDICUS.

Newark, N. J., March 8, 1872.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Ferrous Sulphate, precipitated by alcohol, contains less water of crystallization than the crystallized salt, and loses a portion of it readily on exposure to dry atmosphere. G. H. Barckhausen found that 1 gramme of the crystallized salt required 17·2 c. c. of a solution of chlorinated lime for oxidation, while the same quantity of the precipitated salt, immediately after drying, required 18·8 c. c.; after four hours' exposure at the ordinary temperature, 19·5 c. c., after one hour's exposure to about 80° F., (25 to 27° C.) 20·6 c. c., and after another hour, 21·4 c. c. of the same solution of chlorinated lime were necessary for complete oxidation.—*Archiv d. Pharm.*, 1871, *Dec.*, 197.

Commercial Butyric Ether and Butyric Acid.—Dr. A. Burgemeister examined butyric ether, sold as pure from a well known factory, and found it to contain small quantities of water, alcohol, acetic and propionic ethers; the main constituents were butyric ether (boiling point 118–120° C.) and capronic ether (boiling point 172° C.), almost equal in volume to the former.

Commercial butyric acid, obtained from the same firm, yielded nearly one-third of its volume of capronic acid. The formation of capronic acid during the butyric fermentation of sugar in the presence of cheese and under addition of chalk is well known, but that it is formed in such a large quantity seems to have been overlooked.—*Ibid.*, 199.

Chlorine in Mixtures.—Chlorine water is best prescribed in dilute aqueous solution, which, however, loses its chlorine rapidly in contact with the atmosphere. Since sweetening of such solutions is usually desirable, Mylius made a number of experiments, which proved that syrup of marshmallow present in the proportion of 1 : 6, caused a loss of chlorine amounting to 68·3 per cent in five hours, and honey, under the same conditions, a loss of 94·6 per cent. The loss occasioned by glycerin equalled 13·22 per cent. in five hours, by simple syrup 27·2 per cent. in six hours, and by mucilage of gum arabic 15·2 per cent. in the same time. Comparative experiments of the effects of glycerin and simple syrup indicate that the latter acts less rapidly than the former. The author concludes that chlorine water is best prescribed in dilute aqueous solutions, sweetened with a little simple syrup, and

with the addition of some mucilage to prevent the rapid escape of the gas when the cork is removed.—*Ibid.*, 210–214.

Powdered French Chalk is recommended by Mylius for rolling pills of nitrate of silver made with white bole; the smooth surface imparted to the pills may probably recommend its use in other cases.—*Ibid.*, 215.

Finely Divided Phosphorus.—Mylius suggests to fuse the phosphorus under water, to which some white clay or asbestos has been added, and agitate until cold. On shaking, a uniform milk-like mixture is obtained, in which the finely divided phosphorus is kept suspended sufficiently long to be weighed out correctly.—*Ibid.* 216.

Pommade tannique pour la régéneration des cheveux blancs, prepared by Filliol & Andoque, Paris, contains, according to A. Geheeb, no tannin, but sulphur and 3·866 per cent. lead in the form of acetate. —*Ibid.* 236.

Sel Boergrave, a Belgian speciality, was found by Dr. E. Pfeiffer to be merely coarsely powdered epsom salt; another sample contained between 2 and 3 per cent. of citric acid. The original composition, it is said, requires to the epsom salt the addition of 1 per cent. of chloride of sodium, 2 per cent. of sulphate of potassa and some sugar.—*Ibid.*, *January*, 1872, 26.

Supersaturated Solutions of Sulphate of Soda.—De Coppet uses the anhydrous salt, which has been heated to above 33° C. and cooled again, carefully protected from the dust of the atmosphere. The salt is added in small portions to cold water, contained in a vial, which is placed in a water-bath having the temperature of the surrounding atmosphere, so that the temperature of the solution scarcely varies during the experiment. In this manner the author succeeded to dissolve at 14° C. 35·8 anhydrous sulphate (Na_2SO_4) in 100 parts of water, while the saturated solution of the hydrate ($Na_2SO_4,10H_2O$), at the same temperature, contains only 12·4 parts of the anhydrous salt in 100 of water.—*Journ. de Pharm. et de Chim.*, 1872, *Feb.*, 117.

Preparation of Pure Muriatic Acid.—Hager states, that by Bettendorf's process,* all arsenic is precipitated from crude muriatic acid by stannous chloride, but if a trace of this precipitate is poured into the retort with the acid the distillate again contains arsenic.

* Amer. Journ. Pharm., 1871, 222.

After the reaction with the stannous chloride the crude acid contains bichloride of tin, which readily distils over when the acid is rectified. The author recommends Duflos' process for the removal of arsenic from crude muriatic acid as the best; it consists in diluting the acid to a specific gravity of 1·13, removing any sulphurous acid present by powdered peroxide of manganese, and digesting the liquid with bright strips of metallic copper, which appears also to remove thallium, that is occasionally present. The formation of perchloride from the protochloride of iron is then prevented by adding to the acid in the retort some copper clippings.—*Pharm. Cent. Halle* 1872, N. 6., p. 52.

Pure Carbolic Acid is now prepared by Schering, of Berlin. Hager has compared it with Calvert's pure acid and found both not to be affected in color by the light. Calvert's carbolic acid fused at 41° C., Schering's at 43·5° C.; the former congealed at 33, the latter at 36°; the former dissolved at a medium temperature in 19–20 parts, Schering's in 17·5 parts of water; 100 parts of Schering's carbolic acid dissolve, at a medium temperature, 20 parts of water, Calvert's only 18 parts. The author ascribes these small differences to the presence of a little water in Calvert's, while Schering's acid appears to be anhydrous.*—*Ibid.*, N. 8, p. 68.

Preparation of Collodium.—The process which has been for years successfully used in the laboratory of the university of Munich is as follows: 30 grm. finely powdered saltpetre and 30 grm. sulphuric acid are mixed in a glass cylinder by means of a glass rod until the former is dissolved, 2 grm. cotton are then added and the whole well stirred for five minutes. After washing with much water, then with alcohol and drying, the cotton dissolves readily in a mixture of equal parts of alcohol and ether, and the solution leaves on evaporation a perfectly transparent film. The presence of much nitric acid in the oil of vitriol seems to render the collodium film opaque. The prepation, at one operation, of a larger quantity of collodium cotton than 30 grammes appears to alter somewhat the optical behavior of the collodium; and the same result is obtained if the last traces of acid are removed by ammonia.—*N. Repert. f. Pharm.*, 1872, N. 1, p. 6.

Ampelopsis hederacea.—Wittstein analyzed the leaves of this plant

* Why should the latter then require for solution *less* water than the former? Ed. Am. Jour. Pharm.

in 1845, and proved among other constituents the presence of tartaric acid. Prof. von Gorup-Besanez collected the leaves in June, and found them to contain albumen, bitartrate of potassa, tartrate of lime, gypsum, free tartaric acid (no malic or citric acid), pyrocatechin and sugar, (levulose and dextrose.) Collected in the beginning of September the leaves contained albumen, tartrate of lime (no bitartrate of potassa), pectin, pyrocatechin, glycolate of lime and invert sugar (probably levulose with little dextrose). The author has also analyzed the ashes of the leaves from both collections, and compares the constituents of this plant with those of *Vitis vinifera.*—*Ibid.*, N. 2, p. 109–116.

URETHRAL SUPPOSITORIES.

By Joseph L. Lemberger, Lebanon, Pa.

In presenting these suppositories to your notice, I do not expect to introduce a new idea, but simply apply an old idea to a new use, with a substantial reason for so doing.

Amongst the varied demands claiming the pharmacist's attention was one for something by means of which to reach the neck of the bladder to allay "vesical tenesmus" without the use of a syringe. The case was one of "pelvic cellulitis," excruciatingly painful, the bladder only relieved by means of a catheter, and that operation being always very painful in anticipation, and much more so in reality, the patient for a number of years suffered most excruciating pain upon the introduction of the catheter, the duration of the paroxysm being more frequently one hour than less.

The idea suggested itself to the attending physician that if there could be a suppository made to reach the neck of the bladder, acting endermically, an alleviation of pain might be induced. After some consultation and experiment, the form or shape herewith submitted proved to be the most satisfactory.

The mould for making them was suggested by the old-fashioned candle-mould, on a miniature scale, as sample herewith presented. Each suppository was made to contain three grains of powdered opium, and the composition most suitable seems to be a mixture of filtered yellow wax and cacao butter, in proportion of seven of the former to three of the latter, made as follows:

After preparing the mould by stringing it as you would wick a can-le-mould, with this addition, allowing the wick or string to be seve-

ral inches longer than the suppository, and keeping it on tension, so as to occupy a central position the entire length, then melt the wax and cacao butter carefully, mixing therewith afterwards the opium, and immediately pour into the moulds and cool rapidly in ice-water, when they can usually be withdrawn, or should there be difficulty, as there sometimes is, immerse for a moment in hot water and they can be easily withdrawn.

When used, they are inserted into the urethra to the part affected, and allowed to remain till the patient is relieved, and then by means of the string is withdrawn. A portion of the suppository having melted by the warmth of the parts, produced the desired end, and miraculous as the result may seem, the pain was reduced from one hour to five minutes.

Novel as this thing may seem, I feel that it is worth bringing to the notice of the Association, believing that this form of suppository can be used with the same good result in other diseases peculiar to those parts, and I have wondered whether urethritis and kindred inflammations might not be cured by the same means.

I have no doubt the mode of manufacture can and will be much modified, should the urethral suppository receive the favorable attention it merits.—*Proceedings of the American Pharm. Assoc.*, 1871, *p.* 482.

DETECTION AND ESTIMATION OF BROMIDE IN IODIDE OF POTASSIUM.

By M. Lepage, Pharmacist at Gisors.

Since the price of bromide of potassium is considerably lower than that of the iodide, the latter salt is often met with adulterated with the former. The author recommends a process for its detection, which is based upon the property of mercuric chloride, to precipitate from a mixture of iodide and bromide of potassium only the iodide, the mercuric bromide being soluble in water. The iodide must be free from chloride, carbonate and iodate. One gramme of the salt is then dissolved in 30 grms. pure water. On the other hand a solution is made of one gramme corrosive sublimate in 20 cc. distilled water, which, by means of a burette, is gradually added to the first solution, until it just ceases to produce a turbidity. If the iodide is pure, at least 16 cc. of the mercuric solution are required for this purpose; if impure, the remaining solution will exceed the volume of

4 cc., in proportion as the iodide has been replaced by bromide of potassium.

To prove the presence of bromine in the liquid filtered from the mercuric iodide, it is evaporated to about 8 grms.; after cooling it is put into a test-tube and boiled with a few drops of perchloride of iron until it ceases to disengage vapors of iodine, which is recognized by the vapors being without effect upon starch paper. The cooled liquid is filtered and then, in a test-tube, agitated repeatedly with small quantities of chlorine water and bisulphide of carbon until the latter ceases to become colored from the dissolved bromine.

The presence of bromine may also be demonstrated by agitating the concentrated filtrate from the mercuric iodide obtained as above with three fresh portions of ether, which dissolves from the aqueous solution the excess of mercuric chloride, the double iodide of mercury and potassium, and traces of the bromide. If the operation has been well performed, the liquid contains only bromide and chloride of potassium, from the former of which the bromine is easily separated by chlorine water and bisulphide of carbon.—*Journ. de Pharm. et de Chim.*, 1872, *Févr.*, 103—105.

PRECAUTIONS IN DISPENSING POISONS.

By William C. Bakes, of Philadelphia.

Query 23.—What are the best containers, or what other precautions can be devised for poisonous drugs, to lessen their liability to mistakes in dispensing or handling them?

This is a topic upon which much might be written, and even then the conclusions arrived at might not seem satisfactory. It must be conceded that the ordinary methods of keeping and dispensing poisons are liable to much criticism. In these times when there is so much *free trade* in medicine; when any man, however ignorant and unskilled, is privileged to practice medicine, or deal in drugs, it is of the greatest importance that some safeguards should be thrown around the storage as well as dispensing of poisons. In some States, laws have been enacted regulating the sale of poisons. Some years since, the Legislature of Pennsylvania passed a law requiring that all parties selling poisons should keep a record of the date of sale, name and address of each purchaser, with the quantity of the article sold. This law is scarcely regarded, and the existence of it may not be

known to many in the profession. State laws, however wisely framed, will not prevent accidental poisoning, and education is not always an absolute security against errors in dispensing. A temporary alienation of the mind has often caused serious errors in compounding prescriptions, even with those well skilled in their profession. It should, therefore, be our aim to have all potent medicines so guarded, and their dispensing so regulated, that the liability to error would be greatly lessened, if not altogether prevented. Having given the subject much careful consideration, I have adopted the following precautions in my own establishment:

1. All bottles on the shelves containing such substances as tincture of aconite root, tincture of digitalis, Fowler's solution, tincture of opium, tartar emetic, bichloride of mercury, &c., are of blue glass, with a red caution label on the back of each bottle.

2. Extracts of aconite, belladonna, nux vomica, opium, digitalis, &c., are contained in the ordinary jars properly labelled—and then inclosed in a tin can, also labelled with red letters painted on the tin.

3. The powerful alkaloids as strychnia, veratria, atropia, morphia, and such articles as arsenic, hydrocyanic acid, &c., are kept in their original bottles, in a closet under lock and key, and when dispensed, the assistant dispensing calls another to witness that the article and quantity dispensed corresponds with the prescription; a note is taken by whom the prescription was *vised.*

This plan, strictly adhered to, furnishes an efficient safeguard, and is attended with so little trouble, that it may be readily adopted in every store.

All my labels for poisonous drugs, liniments, and medicines for external applications, are printed on bright red paper—some of which have a *sanded* border. The object of this is that even in the dark, by the sense of touch they may be distinguished from other labels—whilst their color and peculiar appearance in daytime will render them conspicuous.

The sanding of the labels is attended with some trouble, and I find it necessary to do it in the store—but nothing should be considered too troublesome that will guard human life from the possibility of accidents in the dispensing of medicines. Labels may be sanded by covering the part to be sanded with thick elm water, and then dusting over it No. 1 flint sand, and allowing them to dry,

Bottles of various colors have been used in dispensing poisonous

medicines, and preparations for external application, but the shape has always corresponded with those of white glass, and the distinction has not been sufficiently marked. I have used for medicines for external use, a three-sided black glass bottle, which has answered an excellent purpose. I have improved on this by having on each side a number of small projections, and having the bottles of transparent blue glass. This will render them totally unlike any other bottle in use, and even in the dark they cannot be mistaken for another bottle. A leading firm—manufacturers of glassware—will soon be ready to supply these bottles to the trade, and I think they will be appreciated by pharmaceutists, as a valuable addition to the dispensing department, and secure a corresponding appreciation from the public, as an effectual means of protecting them from accidental poisoning. The contrast of the bright red label on this singular shaped bottle is very conspicuous, and carries with it a caution which will not fail to arrest attention.—*Proceedings Amer. Pharm. Assoc.*, 1871, *p.* 436–438.

ON THE ADULTERATION OF OIL OF PEPPERMINT WITH CASTOR OIL AND ALCOHOL.

By E. B. Shuttleworth.

During the last three months a large quantity of American oil of peppermint has been disposed of in Canada, which, the writer has been led to believe, is adulterated to an extent hitherto unrecorded. At the last meeting of the American Pharmaceutical Association, Mr. W. Saunders referred to a case of adulteration of this kind which had been brought before his notice, in which the oil of peppermint contained 25 per cent. of castor oil.* From the following circumstances it would appear that the adulteration is carried much further than this:

A wholesale house having purchased a small quantity of American oil of peppermint was led to believe that it contained an admixture of fixed oil. This supposition was confirmed by the fact that a little of the oil when dropped on filtering paper and exposed to heat, left a permanent greasy stain. As it was undesirable to vend an article which gave evidence of adulteration, the sample, amounting to 55 pounds, was sent for distillation to the writer. The oily destillate

* Canad. Pharm. Journ., Vol. v, No. 3, p. 110, and Proceed. Amer. Pharm. Assoc., 1871, p. 62.

was separated, and found to weigh 18 pounds; it consisted of oil of peppermint of very good quality. The residue in the still weighed 21 pounds, and was found to consist of castor oil. The sum of these weights, deducted from the original weight of the oil, represents the amount of alcohol present. This would, of course, become mixed with the watery distillate. From these data the composition of the oil may be centisimally represented:

Oil of Peppermint, ...	32·72
Castor Oil, ...	38·18
Alcohol, ...	29·10
	100·00

A mixture of the above ingredients, in the specified proportion, gave a clear and very presentable oil, strongly resembling the genuine article. Its density was slightly lower, being ·894 at 60° F. Its behavior with iodine was precisely similar to that of pure oil, and it dissolved perfectly in alcohol of sp. gr. ·838.

The detection of this adulteration is best effected by evaporating a portion of the sample from filtering paper, when the characteristic greasy stain, indicating the presence of fixed oil, will remain. The presence of alcohol is shown by agitation with an equal bulk of water, when a milky emulsion will be produced, and the oily layer will suffer a diminution of volume, which is not, however, proportionate to the amount of alcohol present; a sample treated in this way only lost 0·25 its volume. The amount of adulteration can only be ascertained by careful distillation with water, and subsequent agitation of the distillate with water, to remove traces of alcohol. In this way the quantity of oil of peppermint will be slightly understated.

In the case cited by Mr. Saunders, it appears that alcohol was present, but escaped notice, as a mixture of 25 per cent. castor oil with oil of peppermint is so thick as to preclude any possibility of mistaking the mixture for genuine oil. Evaporation from a test-tube, as recommended, would, in this case, give no indication of the true quantity of the adulterant.—*Canad. Pharm. Journ.*, *March*, 1872.

CINCHONA CULTIVATION IN JAVA.

In a very interesting report on the trade and commerce of the Island of Java, we read that "the cinchona cultivation, under the special care of the Government, is increasing yearly. Besides the twelve

plantations in the Preanger Residency, Government is experimenting in the Passœrœan Residency and in Sumatra. Seeds and plants have also been granted to private persons on application, and several landed proprietors have established small plantations which promise well, and are likely to be enlarged.

A quantity of cinchona bark was sent during 1870 to Holland for realization, and the prices ranged from 1 florin 2 cents to 1 florin 40 cents per pound. The medical service here has also been supplied. The entire last year's crop was over 9000 pounds bark, and the expenses of cultivation, including salaries, etc., slightly exceeding £3500.

The following is a list of the various descriptions of plants in the Government plantations in December, 1870:—

Cinchona Calisaya and *C. Hasskarliana*, . .	1,177,951
C. succirubra and *C. caloptera*,* . .	167,964
C. officinalis, ...	287,849
C. lancifolia, ...	45,777
C. micrantha, ...	785
Total, ...	1,680,299

Of the Government Botanical Gardens at Buitenzorg, we are also told that they "are well known over the East for their extent and beauty as well as for their botanical value: they are under the charge of Dr. Scheffer. Frequent exchanges of plants occur between the Buitenzorg Gardens and those of many of the British colonies."—*Pharm. Journ. and Trans., London, Feb.* 24, 1872.

XYLOL, THE NEW REMEDY FOR SMALL-POX.

By C. R. C. Tichborne, F.C.S., M.R.I.A.

Xylol, xylene, or ethyl-benzine, as it has been respectively called, is one of a homologous series of hydrocarbons, of which the well-known benzine and toluene form the two first. These hydrocarbons are all formed from coaltar-naphtha. Xylol was first procured by Hugo Müller, but its nitro-compound had previously been discovered by Warren De la Rue, in 1856. Coaltar-naphtha is submitted to fractional distillation until the part which boils at 141° is separated; this is submitted to the action of fuming sulphuric acid, which dissolves the xylol and leaves the other hydrocarbons. The xylol is then separated by distillation from this mixture.

* We do not know to what species this refers.—Ed. Pharm. Journ.

Xylol is said to have been used by Dr. Zuelzer, the Senior Physician at the Charité Hospital at Berlin, with great success in cases of small-pox. The theory of its action would appear to be that xylol is taken up by the blood, and acts as a disinfectant. The vapor seems to the writer to possess faint, and not very well marked, anæsthetic properties; this may be due to the presence of a small quantity of benzol, or the other hydrocarbons. The antiseptic properties of this group of compounds are well known, and thus, probably, the specific action of this one. The boiling point is variously stated at 139° to 140°. The specimens examined by the writer generally commenced to boil at about 135° C. The specific gravity was ·866.

It is said that the purity of xylol is of importance, but unfortunately there is no very ready method by which the ordinary practitioner might detect its purity. It should be soluble in fuming sulphuric acid, but it is not soluble in the ordinary sulphuric acid of the Pharmacopœia.

It has a faint odor something like benzol, and an aromatic taste. The doses are three to five drops for children; ten to fifteen drops for adults, every hour to every three hours. It is quite harmless in reasonable doses. In Berlin it is given in capsules. As it is very insoluble the best method of giving it would be in an emulsion of almonds. When once assimilated it is rapidly oxidized in the body, this fact being demonstrated by the production of a peculiar odor in the urine, which, however, is quite distinct from xylol itself.—*Med. Press and Circular, Lond., Feb.* 28, 1872.

ADULTERATION OF ANILINE COLORS.

William H. Wahl, Ph. D.

The intense tinctorial power of the aniline dyes seems to offer irresistible temptation to dishonest dealers to imitate or adulterate them with worthless ingredients. A sample of fuchsine (an aniline red) lately placed in our hands by Dr. Genth was composed entirely of sugar crystals saturated with the coloring matter. To any one familiar with the peculiar arborescent appearance of the pure fuchsine particles, the sugar crystals, with their rhombic prisms, would betray the imposition at a glance; but without this knowledge the detection would be attended with some difficulty, since the color of both genuine and counterfeit samples is equally intense. One of the simplest methods to

detect this and similar impositions is simply to digest a sample of the suspected substance in ether or absolute alcohol, when the coloring matter will be dissolved with ease, and the sugar crystals, or wood fibre (which is also used for dishonest purposes) will remain undissolved.—*Franklin Inst. Journ.*, *March*, 1872.

SOLUBLE GLASS AND ITS APPLICATIONS.

The recent epidemic of fires, if we may be allowed the expression, has in many cases called the attention of the public to this remarkable compound, and stimulated inquiry as to its uses and the methods of applying it. Although it has been known for many years, it has thus far failed to come into very general use, partly because the public have expected from it more than was reasonable, and have consequently been disappointed in practice; and partly because the extravagant praises of some of its friends have placed it in the same category as quack medicines and other articles which are said to cure all diseases and remove all difficulties, and hence are regarded by the more sensible portion of the community as not being good for anything. In reality, however, it does possess the most valuable properties, and may be used to great advantage under a great variety of circumstances.

Soluble glass is simply a variety of purely alkaline glass in which the alkali is in excess. Ordinary window-glass is a compound of silica with potash or soda, and in some cases lime; oxide of lead added to the compound of silica and potash or soda gives flint glass; Bohehemian glass is a compound of silica, soda and lime; and the coarse glass used for bottles contains much iron and some alumina, which is the base of clay. According to the quantity of alkali employed, the glass will be soluble or insoluble; it being understood that all glass is soluble to a certain extent. Old window-panes that have been exposed to the elements for years, are in general so corroded that their surfaces are no longer perfectly transparent; and common flint glass, when finely powdered, dissolves in water to such an extent that its presence can be detected by the least delicate re-agents. But when the proportion of alkali is largely imcreased, and especially when the compound consists of pure alkali and pure silica, we obtain a glass which dissolves entirely in water, and which may be applied as an incombustible varnish to wooden articles, or used as a cement or as a

coating for brick and stone. Soluble glass was first brought into practical use by Prof. Fuchs, of Munich, in Bavaria, in the year 1823, and hence is frequently known as Fuchs' soluble glass. At first it was prepared by fusing ten parts of pearlashes, fifteen parts of powdered quartz, and one part of charcoal together, and pulverizing the mass, which was then added in small portions at a time to boiling water until the whole was dissolved. The solution was then evaporated to a jelly-like consistency, when it was ready for market. More recently it has been found that certain varieties of silica are soluble in a boiling solution of caustic soda; and also that, when the temperature of an alkaline solution is greatly increased, which may be done by boiling it in a close vessel under great pressure, flints and other hard varieties of silica dissolve rapidly. It is in this way, we believe, that Ransome prepares the soluble glass used in the manufacture of his famous artificial stone. It is therefore obvious, from a consideration of these methods, that soluble glass is readily prepared; and, as the materials are comparatively cheap, there is no reason why it should not come into very extensive use, provided it should prove really valuable in the arts.

The first notable application of soluble glass was to the theatre of Munich, where it was used for the purpose of preventing the recurrence of a fearful disaster by fire. Before trusting to its protecting qualities, however, a test was made of its powers, and a small building coated with soluble glass was erected in one of the public squares, and attempts made to fire it at several points, by placing small heaps of light wood in contact with it and setting these heaps on fire. Of course, where the flames came in contact with the building, the wood of which it was made was charred, and to a certain extent destroyed. But in no case did the building itself take fire or burn; and the test was deemed so satisfactory that the theatre was immediately coated in such a way as to be made fireproof. Since that time, it has been applied in many cases, and always with success whenever the application was made with a moderate amount of skill. That it might be used extensively for preventing fires, and for adding to the durability of all wooden structures, is unquestionable; and therefore a few hints as to the best methods of using it may not be out of place. These hints we are enabled to give more readily, since the whole subject was carefully investigated by the celebrated French chemist Dumas, who has, in his "Traité de Chimie appliqué aux Arts," detailed very fully the

results at which he arrived. He found that, although soluble glass is of itself a good preservative from fire, it fulfils the object better when it is mixed with another incombustible body in powder. Clay, whiting, calcined bones, powdered glass, etc., may all be employed for the purpose, though it is difficult to decide which of them is the best. A mixture of clay and whiting appears to be better than either used separately. Flint glass, and the crude soluble glass as it comes from the furnace, are excellent additions. The powdered soluble glass ought to be exposed to the air until it has attracted some moisture; after which, if it be mixed with the solution and applied to any body whatever, it will in a short time form a coating as hard as stone, which, if the glass be of good quality, is unalterable by exposure, and resists fire admirably. When soluble glass is used for rendering wood fireproof or indestructible, it is always well to apply, in the first place, a coating of the pure glass. The pores are in this way filled up; while, if we use a thick and paintlike mixture of the solution with some powder, the liquid does not penetrate beneath the surface, and much of the effect is lost. When properly prepared, soluble glass, after being dried by exposure to the air, suffers a change which renders it incapable of being washed off. The alkali not being completely neutralized in this form of glass, it is difficult to apply oil paint to woodwork that has been treated with it; but this objection might be remedied by treating the prepared surface, when dry, with a weak solution of acid.—*Industrial Monthly for March*, 1872.

A NEW AND READY METHOD OF FORMING PLATINUM BLACK.

By J. Lawrence Smith.

All those who have employed the usual methods of forming *Platinum Black* know that it is attended with some little trouble; having considerable experience in the decomposing of the platin-chlorides of the alkalies by hydrogen, and by ordinary street gas, the resultant products have been frequently examined, and I find that an excellent platinum-black can be thus prepared, whether equal to the best formed by other processes I am not prepared to say. I prefer taking platin-chloride of potassium, and were it not that rubidium and cæsium are too expensive, these would be even better, for their atomic weights are higher than that of the potassium, and consequently the particles of platinum are more widely separated. After the platin-

chloride is completely reduced, the mass is treated with water to wash out the chlorides of the alkalies thoroughly, the residue is dried at a temperature not exceeding 220° F., when it is ready for use. The operation can be readily conducted in a capsule of porcelain or platinum, the platin-chloride is introduced and covered with a circular piece of mica, a little smaller than the wide diameter of the capsule, with a hole in the centre, through which the tube conducting the gas is introduced. The capsule is then heated by any convenient arrangement by which a temperature not exceeding 400° or 500° F., is attained, at which temperature it can be maintained with a little management; a small Bunsen burner with a rosette can be used. If the temperature be too high, the platinum-black will not be as good as that made at a lower temperature. Washing the platinum-black, after the chloride is taken out, with a solution of caustic potash or soda, and subsequently washing with distilled water may improve the product.—*Amer. Chemist, Feb.*, 1872.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The examination of the candidates for the degree of Graduate in Pharmacy commenced in this Institution on Thursday, February 29, and was conducted in the same manner as last year (see *Amer. Jour. Pharm.*, 1871, page 173), except that the Examining Committee, appointed by the Board of Trustees, likewise changed the method from verbal to written queries and answers, so that but few questions were asked verbally. The queries adopted for the present year were as follows:

Chemistry. Prof. Robert Bridges, M. D. Session 1871–72.

No. 1. Give the general properties of Carbon, and name the different forms used in medicine and pharmacy, the nature and special properties of each, including the impurities which may be present in each variety and the mode of detection.

No. 2. How is Oil of Vitriol prepared? State its chemical name, its composition, its physical and chemical properties. Also its officinal preparations and any cautions which may be necessary in their use.

No. 3. What is the chemical name of Sal Sodæ? Give the sources from which it is derived, its composition, with its physical and chemical properties.

No. 4. What acid of phosphorus is officinal? Give the different processes by which the officinal acid is made, and explain the reactions and changes which take place during its formation. Give a formula for the reaction.

No. 5. State the mode of preparing Chlorate of Potassa and give in symbols the rationale of its formation.

No. 6. In what degree of oxidation is it best to detect iron? Give the tests to be used and their effect, and also state in what officinal preparations iron cannot thus be directly detected.

No. 7. What "Alums" are officinal? Give a general formula (in symbols) of their composition.

No. 8. What are the tests by which Phosphoric and Arsenious Acids may be distinguished?

No. 9. By what tests may Magnesium Zinc and Cadmium Salts be distinguished from each other?

No. 10. What are the antidotes for Tartar Emetic and how do they act?

MATERIA MEDICA. Prof. John M. Maisch. Session 1871–72.

No. 1. Give the botanical name, natural order and habitat of the plant yielding Dandelion Root; also the variations in the sensible properties of the root in the different seasons, and the time when it should be collected for medicinal use. How may it be distinguished from Chickory Root?

No. 2. State the characteristic physical differences of the following medicinal leaves: Stramonium, Hyoscyamus, Belladonna, Digitalis and Matico.

No. 3. What is the botanical source of Guaiacum wood? Which portion contains the resin? How is the latter obtained and in what manner may it be distinguished from other resins?

No. 4. Describe the so called Levant Wormseed; its botanical origin, native country physical appearance, active principle and medicinal properties.

No. 5. Angustura and false Angustura Bark; where and from what plants are they obtained; how do they differ in physical, chemical and medicinal properties?

No. 6. State the botanical characters of the natural order Umbelliferæ and the structure of the fruit. Name the medicinal fruits obtained from this order.

No. 7. What part of the plants are the officinal Nux Vomica and Ignatius bean? Describe both according to their origin, structure and relative proportion of active principles.

No. 8. Where, from what plant, what part of it and how is the officinal Opium obtained? How may Opium be examined—aside from a morphiometric assay—to detect the occasional impurities and adulterations?

No. 9. What is the difference in origin, appearance and composition between Catechu and Gambir; how may their peculiar tannin be increased in quantity, and from which principle is it formed?

No. 10. Name the adulterations of Sulphate of Quinia, which have been occasionally practised; and how may they severally be detected?

PHARMACY. Prof. Edward Parrish. Session 1871–72.

No. 1. A vessel at 60° Fahrenheit contains 280 grains of pure water, it will hold 260 of another liquid; what is the Specific Gravity of that liquid? State the specific gravity of Ammonia Water, stronger Ammonia Water, Acetic Acid, Ether, Glycerin.

No. 2. Give the tests of purity for Chloroformum Purificatum, U. S. P.

No. 3. Give the ingredients, proportions and doses of the following: 1. Pulvis Aloes et Canellæ. 2. Aqua Cinnamomi. 3. Infus. Picis Liq. 4. Infus. Gent. Comp. 5. Infus. Cinchonæ Rub. 6. Tinct. Aconiti Fol. 7. Tinct. Aconiti Rad. 8. Acetum Scillæ. 9. Tinct. Cantharidis. 10. Tinct. Opii Acetata.

No. 4. Give the U. S. P. process for Fluid Extract of Wild Cherry, and state the reactions that occur.

No. 5. Give an instance of, 1, an aqueous; 2, a hydro-alcoholic; 3, an alcoholic; 4, an acetic extract; and 5, of an inspissated juice. State properties and doses of each.

No. 6. Give the U. S. P. process of Morphia and its Salts; also its solubilities and leading tests.

No. 7. How is Spirit of Nitrous Ether made? What are its specific gravity and signs of purity?

No. 8. Give the U. S. P. composition of, 1, Seidlitz Powder; 2, Purgative Assafœtida Pills; 3, Lady Webster Pills; 4, Plummer's Pills; 5, Compound Rhubarb Pills.

No. 9. Describe the process for preparing Oil of Cloves, its composition and tests of freedom from adulteration.

No. 10. What are the coloring ingredients respectively of, 1, Tinct. Cardam. Comp.; 2. Spt. Menthæ piper.; 3, Spt. Lavandulæ Comp.; 4, Tinct. Aloes et Myrrhæ; 5, Tinct. Cinchonæ Comp.

Questions by the Examining Committee. Session 1871–72.

No. 1. Give the process for Lead Plaster, and state the reactions; also the officinal Plasters containing it, with their composition.

No. 2. Give the proportions, doses and modes of preparation of Wine of Ergot, Tincture of Nux Vomica, American Hellebore, Kino, Infusion of Serpentaria, Yellow Cinchona, Valerian, Dandelion, Extract of Jalap and compound Extract of Colocynth.

No. 3. Give the average dose of Arsenious Acid, the antidote and how prepared; also the officinal processes for Fowler's and Donovan's Solutions, with their respective doses.

No. 4. What are the advantages, to the Apothecary and Druggist, of a proper understanding of the subject of Specific Gravity? And what are the various methods of ascertaining the Specific Gravity of various classes of substances? stating the reasons for the different processes.

No. 5. Can the Specific Gravities of all acids be taken as correct indices of their strength? If there are any exceptions, state them and the reasons for them.

No. 6. How would you determine whether a liquid contained Corrosive Sublimate?

No. 7. Give the source and medicinal properties of Rhatany Root, and the strength of each of its officinal preparations.

No. 8. Give the officinal process for Iodide of Lead and explain the reaction.

No. 9. What is the officinal name of Dover's Powder? Give the formula for its preparation, and state the localities and plants from which its vegetable ingredients are obtained. What is the dose?

No. 10. State which of the following prescriptions it would be proper to dispense, and which improper; and, in the latter case, the reasons:

A.
℞. Pulv. Antim. et Potass. Tart, gr. xx
Aquæ f℥i.
M. Sig. Emetic. Give at one dose immediately. X. Y. Z.

B. For Mrs. Smith.
℞. Plumbi Acetat. Pulv. gr. xii.
Opii Pulv. gr. i.
Acaciæ Pulv.
Syrupi Simp. aa q. s. ut fiat massa in pil. vi. div.
Sig. Take one pill every three hours in case of hemmorrhage.

C. For J. Smith's Infant.
℞. Cretæ Præparatæ ʒi.
Acaciæ Pulv. ʒss.
Sacchari. ʒss.
Aquæ Cinnam. f℥i.
Tinct. Opii. f℥i.
Ft. mist. Sig. Give a teaspoonful three times a day.

D.
℞. Hydrarg: Bichloridi, gr. viii.
Aquæ bullient. f℥i.
Syrupi Sarsap. Comp. f℥vii.
Misce. Sig. Take a teaspoonful three times a day.

The following specimens were submitted to the candidates for recognition:

Chemistry.	*Materia Medica.*	*Pharmacy.*	*Examining Committee.*
Acidum muriaticum,	Valeriana,	Mist. ferri comp.,	Althæa,
Acidum sulphuricum,	Granati radic. cort.,	Tinct. cubebæ,	Podophyllum,
Acidum oxalicum,	Cornus florida,	Tinct. humuli,	Salvia,
Sulphur sublimatum,	Hyoscyamus,	Vinum opii,	Cubeba,
Potassæ carbonas,	Carthamus,	Syr. rhei arom.,	Tinct. rhei et sennæ,
Potassæ chloras,	Chenopodium,	Extr. buchu fluid,	Vin. colchici radic.,
Sodæ boras,	Anisum, containing 20 per ct. conii fruct.,	Extr. conii fluid,	Extr. colocynth. co. plv.,
Ferri subcarbonas,	Stramonii semen,	Extr. gentianæ,	Liq. potass. arsenit.,
Zinci sulphas,	Guaiaci resina,	Spir ammon. arom.,	Syr. ferri iodidi,
Hydrarg. chlor. corr.	Oleum cajuputi, adulterated with ol. terebinth.	Ung. hydrarg. nitr.,	Potassæ nitras.

After the examinations the following report was made to the Board of Trustees, and the gentlemen named therein were duly elected Graduates in Pharmacy:

The Professors and Examining Committee report that the following-named, having complied with the regulations of the College, have been examined, and are recommended for the degree of "Graduate in Pharmacy." The names are in the order of merit:

NAME.	STATE.	THESIS.
1 Wallace Procter,	Pennsylvania.	*The Fruit of Magnolia tripetala.*
2 Charles L. Mitchell,	"	*Gun Cotton and its Preparation.*
3 James B. Cherry,	"	*Yellow Amorphous Oxide of Mercury.*
4 Charles B. Evans,	"	*The Seeds of Cucurbita citrullus.*
5 Joseph Wiley,	"	*Gossypii Radicis Cortex.*
6 Wm. B. Addington,	Virginia.	*Indigenous Remedies.*
7 George D. Jones,	Pennsylvania.	*Tinctura Ferri Chloridi.*
8 Thomas D. McElhenie,	Ohio.	*Lycopersicum Esculentum*
9 M. D. Richardson,	Kentucky.	*Lobelina.*
10 John M. Harvey,	Delaware.	*Syrup of Phosphate of Iron, Quinia and Strychnia.*
11 Samuel S. Long,	Pennsylvania.	*Sabbatia angularis.*
12 Albert C. Curtis,	Ohio.	*Benzoinum.*
13 C. O. Thiebaud,	Indiana.	*Juglans cinerea.*
14 Frank P. Hill,	Ohio.	*Syrupus Scillæ compositus.*
15 Ernest Pierpoint,	Illinois.	*Sanguinaria Canadensis.*
16 Horatio N. Fraser,	Rhode Island.	*Cotton Seed.*
17 Henry H. Bitler,	Pennsylvania.	*Oleum Gossypii.*
18 Milton M. Buss,	"	*Common Garden Rhubarb.*
19 Henry A. Borell,	"	*Suet. (Sevum, U. S P.)*
20 William Estell Lee,	New Jersey.	*Gnaphalium polycephalum.*
21 E. C. Trembley,	Pennsylvania.	*Mel Rosæ.*
22 Jefferson Oxley,	Kentucky.	*Ericaceous Plants.*
23 Jules Muringer,	Pennsylvania.	*Pilulæ Hydrargyri.*
24 Jacob R. Stephens,	"	*Prescriptions.*
25 Lee S Harrison,	Ohio.	*The Variable Character of Extracts.*
26 Max Geiger,	Pennsylvania.	*Glycerin.*
27 George S. Davison,	"	*Bromine and its Compounds.*
28 John Stuart Frazer,	Illinois.	*The Physician and the Pharmacist.*
29 Joseph Cave,	Pennsylvania.	*Ozone, its Production and Uses.*
30 George W. Knight,	"	*The Prevention of Mistakes in the Drug Store.*
31 Louis A. Matos,	Cuba.	*Pharmaceutical Experience.*
32 Alfred H. Bolton,	Pennsylvania.	*Some Oleo-resins by Deodorized Benzine.*
33 George Belle,	"	*Aqueous Extract of Rhubarb.*
34 Joseph H. Crawford,	"	*Preparations of Cinchona Bark.*
35 B. T. Fairchild,	Connecticut.	*Suppositoriæ Assafoetidæ.*
36 Herbert Hazard,	New York.	*A New Source of Potash Supply.*
37 Samuel T. Hensel,	Pennsylvania.	*Fungi.*
38 Jn. M. Wirgman,	"	*The Oils of Peach Kernels.*
39 Harry W. Wetherill,	"	*Gillenia Stipulacea.*
40 John H. Dawson,	New York.	*The New York Drug Law.*
41 T. S. Richardson,	Pennsylvania,	*Soluble Cream of Tartar.*
42 W. Barton Hawkins,	Michigan.	*The Curative Powers of Drugs.*
43 Samuel Stewart Ford,	Connecticut.	*The Uses of Glycerin.*
44 Samuel Lemly, Jr.,	Mississippi.	*An Improved Fluid Extract of Rhubarb.*
45 Newton H. Kemmerer,	New Jersey.	*Adulterations.*
46 Louis Oliphant,	Pennsylvania.	*Hydrangea arborescens.*
47 Charles H. Clark,	"	*Saponification and Saponification of Castor Oil.*
48 Edward E Desh,	"	*Pilulæ Quiniæ Sulphatis.*
49 Milton W. Roth,	"	*Comparative Value of Benzine and Ether in Preparing Oleo-resins.*
50 Atwood Yeakle,	"	*The Pharmacist and Physician.*
51 Hibbert P. John,	"	*Disinfectants.*
52 Eugene W. Spencer,	Michigan.	*Artificial Congress Water.*
53 C. S Allen,	Ohio.	*Cucurbita citrullus.*
54 Benjamin S. Gilbert,	Pennsylvania.	*Sarracenia purpurea.*
55 John H. Shrum,	"	*Rhus glabrum.*
56 J. Frank Ash,	"	*Natural Chemistry.*
57 Isaac Tull,	"	*Suppositories.*
58 Henry M. Mutchler,	"	*Hydrate of Chloral.*
59 Wren H. Light,	Kentucky.	*Concentration of Vinegar.*

Robert Bridges,
John M. Maisch,
Edward Parrish,
Professors.

J. Charles Shivers,
Wm. J. Jenks,
Samuel S. Bunting,
Thos. S. Wiegand, *Committee.*

In addition to the above, the following were examined and passed in June, 1871. Their names are not arranged in order of merit:

Eli S. Beary,	Missouri.	*Æsculus Hippocastanum.*
Stanley C. Muschamp,	New Jersey.	*Cerasus Serotina.*
J. A. Schiedt,	Pennsylvania.	*Difference in Filtration of Plain and Folded Filters.*

The annual commencement of the fifty-first course was held at the American Academy of Music on Friday evening, March 15th. The degree of Graduate in Pharmacy was conferred upon the 62 gentlemen named above by the President of the College, Dillwyn Parrish. The valedictory address was delivered by Professor J. M. Maisch, and was well received. An analytical balance, made by Becker & Sons, New York, was then presented to the College by Mr. H. P. John, on behalf of the graduating class, and received by Prof. Bridges, President of the Board of Trustees. A committee of the Alumni Association distributed the numerous bouquets, books and other presents sent upon the stage by the friends of the graduates, after which the ceremony closed with music by J. W. Yost's orchestra, which had entertained the large audience with choice selections from celebrated masters.

At an early stage of the proceedings, the Japanese embassy, at present travelling in the United States, and having just arrived from Baltimore, entered the building, and by the Committee of Arrangements were conducted to one of the proscenium boxes, where a number of bouquets were presented to them, and where they remained with their interpreters to near the close of the evening, displaying much interest in the proceedings.

The arrangements made for this occasion were perfect, and the Committee deserve great credit for their successful labor.

The Annual Meeting of the Alumni Association of the "Philadelphia College of Pharmacy," held its regular session in the College hall, the preliminary session on Thursday, March 14th, and general session on Friday, March 15th. At the first session, the minutes of the last annual meeting were read, also the minutes of the several meetings of the Executive Board during the past year. A Nominating Committee was appointed to report at the next session. The Nominating Committee reported the following candidates to serve for the ensuing year: President, Chas. L. Eberle; First Vice-President, A. P. Brown; Second Vice-President, D. Preston; Recording Secretary, Wm. McIntyre, 2229 Frankford Road; Corresponding Secretary, E. Wendel; Treasurer, E. C. Jones; to fill vacancies in Executive Board, W. Procter and C. Parrish; Trustees Sinking Fund, E. A. Crenshaw, H. Dwyer, E. Hopper.

C. Parrish read a paper proposing the establishment of an Alumni chair in the College on "Toxicology." This was referred to a committee to be appointed by the President of the Association. The President's annual message was read, and was received by the members with applause. The new officers were regularly installed. T. S. Wiegand presented, on behalf of the Association, the Alumni medal to Mr. Wallace Procter, he having been pronounced by the Professors and Examining Committee the first classman. Mr. Procter responded, thanking the Association for the honor conferred upon him. After the usual transaction of business the meeting adjourned.

Clemmons Parrish, *Rec. Secretary.*

College of Pharmacy of the City of New York.—The annual commencement of the 42d session of this institution was held at Association Hall on

Tuesday evening, March 19th. The President, Mr. Wm. Hegeman, addressed the graduating class with a few well-chosen remarks, and then conferred upon them the degree of Graduate in Pharmacy. The following is a list of the graduates, with the subject of their theses: P. de la Calle, Cuba, "Aguedita, a Cuban Plant;" Augustus G. Caille, Germany, "Chemical Analysis for Inorganic Poisons, Creosote Phenol and Coal Tar Creosote;" George Essig, New York, "Chloral;" Julia Z. Formel, Cuba, "Digitalis Purpurea;" Thomas R. Frost, New York, "Iron, and its Preparations;" Frank S. Jones, New York, "Spiritus Ætheris Nitrosi;" Charles Pabst, New York, "Organic Acids;" Charles F. Ringler, New York, "Medical Botany;" J. Henry Tucker, Baltimore, Md., "Review of the Chemical Testimony of the late Wharton Trial."

The valedictory address was delivered by Prof. C. F. Chandler, after which the following prizes were awarded: First prize, of $100, for the most satisfactory examination, Augustus G. Caille; chemistry, $50, J. H. Tucker; botany, $50, C. F. Ringler: pharmacy, $50, Frank S. Jones. Another prize of $50 was given to Mr. Tucker by the Alumni Association for the best thesis. Mr. Jones also received a prize of a pharmaceutical still and condenser for the best examination upon weights and measures and upon specific gravity. One of the students, on behalf of the graduating class, then presented to the College a large oil painting of John Milhau, one of the founders, and lately President of this College.

The College held its annual meeting on the 21st of March, and elected the following officers: President, Wm. Hegeman; Vice-Presidents, Wm. Neergaard, Isaac Coddington, P. Balluff; Treasurer, Wm. Wright, Jr.; Secretary, H. A. Cassebeer, Jr.; Trustees, P. W. Bedford, G. C. Close, A. C. Dung, D. Hays, E. L. Milhau, M. L. M. Peixotto, Chas. Rice, D. C. Robbins, A. W. Weismann; Delegates to the Amer. Pharm. Assoc., P. Balluff, F. Hoffmann, E. L. Milhau, Chas. Rice, D. C. Robbins.

It is gratifying to learn that this College has likewise been compelled to secure increased accommodations for its school. A room about double the size of that formerly used has been secured in the University building, and will be fitted up for the lecture room, while the old one will be retained for the library, cabinet, and the meetings of the College and Board of Trustees.

The Executive Committee of the Apothecaries' Union, which was formed last year to secure for New York city a better and more just pharmaceutical law, has recommended its members to join the College of Pharmacy.

Alumni Association of the New York College of Pharmacy.—At the annual meeting, held March 18th, President Robbins read his annual report, and at the subsequent election the following officers were elected: President, D. C. Robbins; Vice-Presidents, P. W. Bedford, Hampden Osborne, John Best; Treasurer, Theobald Frohwein; Secretary, Thos. F. Main; Executive Committee, B. F. McIntyre, John A. Dunn, Chas. B. Smith, Chas. S. Plumb; Delegates to the American Pharmaceutical Association, Thos. F. Main, Frank S. Jones, Hampden Osborne, J. W. Ballard, L. M. Rice.

The Association directed the printing of the constitution and by-laws, the list of members, the annual report of the President, as also the valedictory address of Prof. C. F. Chandler.

Maryland College of Pharmacy.—At a special meeting, held Jan. 31st, the pharmaceutical law was again under consideration (see February number of this Journal, p. 85). It was amended and a committee appointed to proceed to Annapolis and urge its passage by the Legislature. The proposed bill is an improvement of the act passed March 23d, 1870, with the following principal modifications: it applies also to managing assistants of stores; it provides not only for the examination but also registration of those becoming principals or managing assistants hereafter, and makes those previously registered, who ceased to do business, subject to all the provisions of this act before recommencing business; it recognizes diplomas of pharmaceutical colleges, if based upon a full apprenticeship of *four years;* it requires the display of the name and of the words "registered pharmacist" in front of every pharmacy; the business of a deceased registered pharmacist may be conducted for the benefit of the heirs by a registered pharmacist; the fees are $5 for each examination, and $1 for registration; one half of the fines go to the informer, the other half to the Maryland College of Pharmacy.

At the stated meeting held Feb. 8th the Proceedings of the Congress of Colleges held in St. Louis were read and discussed. Mr. J. F. Hancock read an essay on pharmaceutical legislation.

The twentieth annual commencement took place, at the New Assembly Rooms, on Thursday evening, March 7th. Professor Claude Baxley, M. D., announced the graduates, and the President conferred the degree of Graduate in Pharmacy upon Charles H. Doeller, Maryland (*Radix zedoariæ*); Ferdinand Hassencamp, Jr., Maryland (*Hyoscyamus niger*); Henry A. L'Engle, Florida (*Pharmacy and Benefit of Government Protection*); N. S. Pursel, Virginia (*Salvia officinalis*); Lewis C. Roehrle, Germany (*Phytolacca decandra*); Wesley W. Test, Tennessee (*Gelsemium*); John B. Thomas, Maryland (*Simaba cedron*), and Charles T. Thomas, Ohio (*Aqua*).

The degree of "Master in Pharmacy" was conferred upon the following graduates: Wm. S. Thompson and A. P. Sharp (Class 1842), J. Faris Moore (Cl. 1847), Lewis Dohme (Cl. 1857), John F. Hancock (Cl. 1860), and Charles E. Dohme (Cl. 1862.)

The valedictory address was delivered by Prof. J. Faris Moore.

The annual meeting of the Maryland College of Pharmacy was held on Thursday, March 14th, in the hall of the College, No. 12 West Baltimore street. The President, Prof. J. Faris Moore, occupied the chair, and Mr. Edwin Eareckson acted as Secretary. The minutes of the last general meeting and the meetings of the Board of Trustees were read and approved. Reports from the various standing committees were received and accepted. The committee appointed to visit Annapolis in regard to the bill before the Legislature relating to pharmacists, made a report, which was accepted and the committee discharged.

Mr. L. Dohme read an essay on experiments with sulphovinate of soda and its manufacture. A quantity of newly invented apparatus to be used in the compounding of drugs were exhibited and their use explained.

Mr. N. Hynson Jennings made a few remarks on the manufacture of suppositories, giving experiments to illustrate his method.

Mr. A. P. Sharp read an essay on hydrometers, exhibiting a variety of description and explaining their manufacture and uses.

At the evening session the meeting was called to order by Dr. Joseph Roberts, Vice-President. An interesting exhibition of microscopes and microscopic objects of pharmaceutical interest was given by Mr. W. F. Daily, to whom, at the close of the exhibition, a vote of thanks was unanimously tendered.

Dr. L. H. Steiner, State Senator of Frederick County, and formerly one of the professors of this College, was then introduced by the President, and delivered the annual address.

The Doctor was warmly applauded and, on motion of Dr. Joseph Roberts, a resolution was adopted thanking him for his address, and requesting a copy to be published in pamphlet form.

The meeting then, on motion, adjourned, and the members of the College, accompanied by a few invited guests, proceeded to the Sherwood House, corner of Fayette and Harrison streets, and after a half hour or so spent in pleasant conversation in the parlor the doors were thrown open and the company, to the number of fifty, were invited into the dining-room, where an entertainment awaited them, which for its variety, profusion and elegance reflected credit alike upon the Committee of Arrangements and the host, Mr. C. P. Barnard. While the bill of fare embraced all the delicacies of the season, no intoxicating liquors were upon the table.

Among the invited guests were Rev. E. A. Dalrymple, D.D., Dr. Steiner, Professor Wm. P. Toury, of the Maryland Institute, Dr. John A Conner and Professor Wm. Simon. After the cloth was removed the following toasts were proposed:

The Republic of the United States, responded to by Dr. Joseph Roberts; The State of Maryland, by Dr. L. H. Steiner; The Medical Profession, by Dr. Claude Baxley; The Colleges of Pharmacy of the United States, by Prof. J. Faris Moore; The American Pharmaceutical Association, by Dr. A. P. Sharp; The Society of the Alumni, by Mr. L. H. Nice; The Ladies, the Elixir of Society, by Rev. Dr. Dalrymple; Progressive Science, by Mr. Wm. F. Daily.

The company dispersed when the wee hours were reached, all much pleased with this reunion.

We are gratified to learn that the Board of Trustees of the Maryland College of Pharmacy have concluded to give instruction in analytical chemistry in connection with the other branches taught in the College, and a committee has been appointed to make the necessary arrangements for establishing a laboratory.

The Alumni Association of the Maryland College of Pharmacy held a meeting on Thursday evening, March 21st, at the hall of the College, Mr. Wm. S. Thompson in the chair, J. Henry Hancock, Secretary.

After the regular order of business had been gone through, Prof. J. Faris Moore delivered an interesting address on the advanced progress of the science of pharmacy, in the course of which he said:

"The few who have striven to make your *alma mater* what it is are growing old, and will soon retire from the active duties of life, and on whom should the

mantle fall but the graduates in the school? It is for you the College of Pharmacy was established, and you will reap the benefit of it. Those who have maintained it give you a good name. The College of Pharmacy has, I think, wisely established two grades or titles of distinction, viz., those of Graduate and Master, which are open to all who are diligent in their calling and able to pass the requisite examinations. The first you have obtained; let me urge you to study for the second. Study for yourselves, not for the examination, for knowledge is power, is happiness, is wealth, for the patient student will be a student all his life. No man can be that without acquiring knowledge useful to himself and his fellow-men. Endeavor to make that knowledge useful to others. Let me impress upon you, in the language of another, 'that your daily life abounds in opportunities.' Not a drug you handle, not a poison you dispense, but has its history; you ought to know it."

Mr. Charles R. Beck made some remarks on indigenous medicinal plants and on minerals found in the United States, suitable for the manufacture of chemical preparations, many of which are employed in medicine. After some additional remarks on *Cassia Marilandica*, by Prof. J. F. Moore and Louis Dohme, the meeting adjourned.

The Medical Department of Columbia College, Washington, D. C., held its commencement at Lincoln Hall, on the evening of March 7th, when the degree of Graduate in Pharmacy was conferred upon the following gentlemen: Americus Davis, Francis S. Gaither, W. C. Milburn, C. L. R. Sayre, G. G. C. Simms and Thos. F. Sullivan.

We believe that this is the first time that the above degree has been conferred in the United States by a medical institution, and refer to the editorial columns for some remarks upon this subject.

The Louisville College of Pharmacy has received the following generous donations to its cabinet: from Messrs. W. H. Schieffelin & Co., New York, 20 specimens, and from Messrs. McKesson & Robbins, New York, 80 specimens of materia medica; from Messrs. Rosengarten & Sons 69 specimens, and from Messrs. Powers & Weightman 154 specimens of chemicals. The Board of Trustees, at their meeting of March 11th, instructed the Curator, by a unanimous vote, to tender, through the "American Journal of Pharmacy," their cordial thanks to the above firms for their munificent gifts.

(Signed) J. A. McAfee, *Curator*.

The Pharmaceutical Association of Allegheny County.—We have received a pamphlet containing the constitution, by laws and code of ethics adopted by this Association, which, now being definitely organized, must exert a beneficial influence on the status of pharmacy in the western section of Pennsylvania. The list of officers for the current year was published on page 518 of our last volume.

Minutes of the Philadelphia College of Pharmacy.

The Annual Meeting of the Philadelphia College of Pharmacy was held at the College building March 25th, 1872. 26 members present.

In the absence of the President, William Procter, Jr., 1st Vice-President, occupied the chair.

The minutes of the last meeting were read and adopted. The minutes of the Board of Trustees were read by A. B. Taylor, Secretary of the Board, and approved.

The minutes of the Board inform that, at the 51st Annual Commencement, held at the Academy of Music on the 15th inst., the Diploma of the College was conferred on sixty-two graduates, three of whom passed the examination in June last.

The Committee on Publication reported as follows:

To the Philadelphia College of Pharmacy:

The Publication Committee reports that its duties have been duly attended to during the past year. The plan of carrying on the work of the Committee under a regular organization of officers, meeting monthly and keeping minutes, has been a success. The labors of the Editor in keeping up the spirit of the Journal, and supplying it with original and selected articles, are deserving of mention. That officer reports, that

"The transaction in the College building, of all the business pertaining to the Journal, has worked well; all letters, journals, etc., intended for, or relating to, the editorial or business portion of the Journal, being now received at the College Hall.

"The Journal has been regularly issued during the past year at the beginning of every month.

"Arrangements have been made with several of our foreign exchanges, and others are hoped to be perfected during the present year, whereby these exchanges will be received by mail, thus avoiding all loss of time and enabling the Editor to always select the latest investigations for publication.

"As directed by the Committee, the Journal has been stopped from all delinquent subscribers, after repeated notifications to pay their arrearages failed to elicit an answer. This loss of subscribers has been more than compensated by new subscriptions received from all parts of the country.

"The Editor has been informed that a number of *delinquent* members of the College receive their member's copy of the Journal, contrary to chapter viii, section 9, of the By-Laws, and he suggests that the Treasurer of the College, by special resolution, be directed to furnish the Publication Committee, by the *last Monday of May next*, a complete list of all members who may be in arrears with their annual dues on that day, so that the Journal may be stopped." As the College now pays the Publication Committee $2.08 for each copy of the Journal furnished to members, it is wrong that delinquents should receive it.

The efforts of the Business Editor have largely increased the income of the Journal by new subscriptions, by the collection of old debts, and especially by prompt attention to the advertising department, which will more fully appear in his special report.

In conclusion the Committee would refer to the excellent arrangements of their Treasurer for the prompt and accurate conduction of the financial business of the Journal, and congratulate the College on the favorable statement his special report exhibits.

William Procter, Jr., *Chairman.*
Thomas S. Wiegand, *Secretary.*

On motion, it was resolved that the Publication Committee are hereby authorized to stop the delivery of the "Journal" to all members who are in arrears on the 1st of June, if they deem it proper,—and that the Treasurer of the College be requested to furnish the Committee with a list of all who are in arrears at that date.

The report of the Treasurer of the Publishing Committee was read and accepted. This report shows a very satisfactory condition of the finances of the Committee.

On motion of James T. Shinn, the thanks of the College were tendered to the Editors, and Treasurer of the Publishing Committee, for the very successful management of the affairs of the "Journal" during the past year.

On motion of Jas. T. Shinn, the Treasurer of the College was authorized to cancel $2500 of the Scrip issued by the College, at par value.

Report of Sinking Fund Committee.

The Sinking Fund Committee respectfully report that they have, since their last report, received twelve hundred and twenty-eight dollars thirty-five cents, which, with the balance on hand on the first day of January, 1871, enabled them to liquidate the remaining mortgage indebtedness to Messrs. Powers & Weightman, of twelve hundred and fifty dollars, with three months' interest, amounting to eighteen dollars seventy-five cents, leaving, with the amount of interest accruing on deposits, a balance of twenty dollars thirty-nine cents.

All of which is respectfully submitted.

Thos. S. Wiegand, *Chairman.*

Report of Librarian.

The Librarian respectfully reports that, since the last annual meeting, he has bound the Theses up to March, 1871, and charges himself with the balance on hand at that time,

hand at that time,	$51 53
Since then he has received,	19 70
	71 23
And expended for binders' paper and backs for volumes,	37 15
Leaving a balance in his hands of,	$34 08

No other work in connection with the Library has been undertaken, as the Committee have been unable to meet for work connected with their duty.

All of which is respectfully submitted.

Thos. S. Wiegand, *Librarian.*

No report was received from the Curator.

On motion of Dr. Robert Bridges, the Chairmen of the Committees on the Cabinet and Herbarium, with the Curator, were directed to report to the Board of Trustees the probable expense of putting the cabinet and herbarium in complete order, and that they be empowered to act in furtherance thereof.

On motion of Thomas S. Wiegand, it was resolved that the Trustees of the College take such measures as may be advisable to secure additional accommodations for the laboratory of practical instruction in chemistry and pharmacy.

The resignation of J. Lewis Crew was read and accepted; on motion, Mr. Crew was allowed to retain his certificate of membership.

The annual election for Officers being ordered, Messrs. Wm. McIntyre and Wm. B. Webb acting as tellers, reported the election of the following Officers:

President, Dillwyn Parrish.

1*st Vice-President*, William Procter, Jr.

2*d Vice-President*, Robert Shoemaker.

Treasurer, Samuel S. Bunting.

Recording Secretary. Charles Bullock.

On motion, then adjourned. Charles Bullock, *Secretary*.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held on the afternoon of March 19th, 1872, Prof. Maisch presiding.

The minutes of last meeting were read and approved.

Messrs. Rosengarten & Sons presented samples of Cinchona Barks grown in the Government Gardens at Ootacamund, Presidency of Madras. They consist of the so-called old mossed bark of Cinch. succirubra, and of the unmossed bark of Cinch. condaminea (officinalis), and are such as are now sold in the London markets. In reply to inquiries, Mr. Rosengarten stated that with the exception of Calisaya Bark, which is sometimes scarce, the supply of the desirable kinds from South America is good. The root barks imported in former years seem to have disappeared. The thanks of the College were presented Messrs. Rosengarten.

The Chairman presented the "Year Book of Pharmacy and Transactions of the British Pharmaceutical Conference for 1871," and the 19th volume of the "Proceedings of the American Pharmaceutical Association."

A paper, by Allen Shryock, upon the Strength of the Officinal Tincture of Opium, was read and referred; also a paper, by Geo. W. Kennedy, of Pottsville, Pa., upon the amount of Moisture contained in Dried Drugs. (See pages 158 and 160 of this Journal.)

Prof. Parrish presented, on behalf of Cramer & Small, a specimen of fixed oil obtained from 15 pounds of Nux Vomica, in the process for making the alcoholic extract; the weight of the oil was two and a half ounces, that of the extract, after its separation, 18 ounces. The oil was of a dark brown color and very bitter in taste. Prof. Maisch remarked that he had not separated the oil in making this extract on a large scale, on account of its bitterness, but that by mixing the tincture, concentrated by evaporation to a syrupy consistence with a little water, and evaporating—as recommended some years ago, in some pharmaceutical journals—it may be almost completely mixed throughout the mass.. It was further remarked that no directions for its separation are given in the Pharmacopœia.

Prof. Parrish exhibited specimens of vaginal suppositories made of Mr. Brady's material, consisting of 3 p. gelatine, 7 p. glycerin and 1 p. alcohol.

The gelatine was first heated up with a small quantity of water till dissolved, the glycerin and alcohol added, and evaporation continued.

He also prepared, in presence of the members, a vial of emulsion of oil of turpentine by the process of J. W. Forbes, of San Francisco, published in the *Amer. Jour. Pharm.*, stating that, after many years' experience with this class of extemporaneous preparations, he had learned a real improvement, whether viewed in the light of convenience or perfection in the resulting preparation; he also showed emulsionized ether and chloroform made by the same process; in the latter, the emulsionized chloroform, owing to its greater specific gravity, subsides in the vial, but is completely diffused by shaking.

Prof. Maisch raised the question, What is colts' foot root? to which reply was made, that such a synonym is applied to Asarum Canadense, owing to the imagined resemblance of the leaves of that plant to a horse's hoof.

Prof. Maisch exhibited oil of Eucalyptus globulus, said to be used for adulteration of other volatile oils; it has a delicate odor, easily covered by bergamot and more powerful perfumes. The tree is indigenous to and abounds in Australia, especially in the more healthful parts of that island. As a shade tree it is cultivated in Southern Europe; the leaves yield six per cent of the oil. The price of the oil in commerce is about $1.50 to $2.00 per pound. Also a specimen of Gurjun Balsam, or wood oil, obtained from several species of Dipterocarpus, indigenous to the East Indies, which is used in England and Germany for the same uses as Copaiba, which it resembles in odor, though dark and opaque, and having a bitter taste; at 230° to 260° it becomes thick and almost gelatinous—above that temperature is limpid.

After the usual opportunity for conversation, the meeting adjourned.

Philadelphia, March 22d, 1872 Clemmons Parrish, *Registrar.*

Editorial Department.

Pharmaceutical Degrees by Medical Colleges.—The Washington, D. C., *Evening Star*, of March 7th, 1872, contains the following paragraph:

"The degree of doctor of pharmacy has been conferred upon our well-known druggist and pharmacist, Mr. D. P. Hickling, corner of Pennsylvania avenue and 3d street, by the faculty of Georgetown College—the first degree of the kind ever given by the college."

The Georgetown College, we believe, is a medical school, and not a university in the true meaning of this word, as applied to scientific schools, namely, *a school where all the arts and faculties are taught und studied.* We recognize the correlation of medicine and pharmacy, and that the latter, as a separate art and science, is the offspring of the former; but we do not acknowledge their identity, and look upon the conferring of pharmaceutical degrees by strictly medical educational institutions, which, by such a precedent, might be inaugurated, with the same favor with which we should regard the attempt of a College of Pharmacy to confer the degree of Doctor of Medicine, *honoris causa* or otherwise.

In another place we record the conferring of the degree of Graduate in

Pharmacy by the National Medical College (Medical Department of Columbian College). This institution, likewise situated in the National Capital, has, since 1870, connected with it a school of pharmacy, the announcement of the second course of lectures of which is before us. The regulations for graduation are substantially the same as those of the Colleges of Pharmacy within the United States, except that an apprenticeship of *three* years is required. The lectures on Pharmacy, which chair is held by Dr. R. H, Stabler, of Alexandria, Va., appear proper and to the purpose. Of the other two branches, we are informed that the lectures on Materia Medica and Chemistry will be *substantially the same delivered to the medical classes* (Italics our own). This we consider radically erroneous. Our position on this question, as far as materia medica is concerned, is fully expressed in the following quotation from the valedictory address lately delivered to the graduating class of the Philadelphia College of Pharmacy:

"The pharmacist studies materia medica with a different eye and from a different standpoint as the physician. The latter looks solely to the physiological and therapeutic effects of the drugs prescribed by him; the former, knowing that these results can be obtained from the articles in question only when they possess certain physical and chemical characteristics, looks mainly to these, and judges by their presence or absence of the suitableness of the drug for use in medicine. When prescribing opium, ipecacuanha, cinchona, aloes or any other article of the materia medica, theoretically the physician cares not for the articles prescribed, but solely for the effects which the accumulated experience of thousands of observers leads him to expect from these drugs under given conditions. But it is the bounden duty of the pharmacist to know that whatever may be prescribed is in such a state and of such composition as the accumulated experience of another class of observers has shown to be the normal one, and moreover to be the one from which the reliable information of the effects in health and disease has been obtained. In a word, the physician studies mainly *pharmacology*, that is that branch of materia medica which treats of the physiological and therapeutical powers and effects of drugs, even though he may not be able to recognize or identify the articles which he orders for his patients; while the pharmacist has to devote his energies mainly to *pharmacognosy*, or that branch of materia medica which treats of the identity, proper composition, quality and preservation of these medicinal agents, of the detailed activity of which he may be ignorant, though he must know the ordinary and the maximum doses which cannot be exceeded unless in exceptional cases, the circumstances and conditions to be defined by the physician."

Our views are similar in relation to chemistry, if a little more of that science is to be taught than the mere rudiments, if the endeavor is to teach its practical application to pharmacy, medicine or other sciences and arts. The principles, the fundamental ideas and theories of chemistry are the same in whatever relation or application it may appear; but the times of half or three-quarters of a century ago have long since passed away, when it was possible for the physician or the pharmacist to master the entire field of that science of almost universal applicability. Special courses have none the less become necessary for these two than for the professional geologist, metallurgist, botanist, physiologist, &c.

The impetus to the special education of the pharmacist in the United States was given when that time-honored institution, the University of Pennsylvania,

concluded to confer, upon suitable restrictions, the title of Master in Pharmacy through its medical department. The pharmacists of Philadelphia objected to this, and in 1821 instituted the Philadelphia College of Pharmacy, which in a few years was followed by similar institutions in New York, Baltimore and subsequently in other cities, whereupon the University of Pennsylvania desisted from its proposed undertaking, and has ever since been among the firmest friends and supporters of the separate education of the pharmacist.

Nor are these views peculiar to this city, or even this country. Everywhere throughout the civilized world, where the pharmacist is still dependent for his education upon medical institutions alone, he is endeavoring to free himself from this unjust bondage, insufficient in its practical results. These views are admirably expressed in the following passage of the address sent last year by the North German Apothecaries' Society to the American Pharmaceutical Association :*

"We are all united upon the common principle, that pharmacy can thrive only under the guidance of pharmacists. To attain such control has been our aim ever since our Society was founded. Pharmacy—though it would lose its main support with the downfall of medicine—has elevated itself to a certain independence; it has considerably aided medicine by cultivating the sciences of chemistry, physics, and botany; and an independent position must be conceded to it, since, like the allied professions, it is too comprehensive to be made subordinate to another."

The Bogus Diploma Business.—Both houses of the Legislature have passed a bill annulling the charter of the Eclectic College of Pennsylvania, formerly situate in Haines street above Sixth; then at northeast corner of Sixth and Callowhill, and lately in Pine street between Fifth and Sixth, of which Dr. John Buchanan is dean. Also of the American College, once at the corner of Eighth and Noble streets; alias the Eclectic College of Philadelphia, situate in Friends' School Building, Cherry street near Fifth; alias the Philadelphia University of Medicine, latterly in Ninth street below Locust, of which the notorious Dr. William Paine has been the principal. The reason for this action was because these institutions have become bogus diploma shops, and peddled out the degree of Doctor of Medicine to barkeepers, tavern-keepers, professional gamblers, horse-jockeys and ignorant negro quacks, who had never studied medicine, and were not required to do so. In this action the Legislature has done exactly what was right.—*Philadelphia Sunday Dispatch, March* 24.

Pharmaceutical Legislation in the United States.—The proposed pharmaceutical law for New Jersey has again been defeated. We hope that the friends of the measure will not despair of final success, but remember that indifference shown now may be the cause of becoming burdened with such an objectionable law as is still in existence in New York City, which, however, we trust will soon be repealed. The prospects seem bright in Maryland for securing an improvement upon the Baltimore law. The modified bill approved by the pharmacists and druggists of Philadelphia has passed the House, and is pending in the Senate of Pennsylvania, before which body is also a bill taxing every pharmacist in the State for the support of three men, who are to constitute an examining board. The antagonism existing between the two bills before the Legislature of Ohio, is likely to kill both.

* Proceedings Amer. Pharm. Assoc., 1871, p. 78.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Rapports sur les Expositions internationales de Pêche de Boulogne-sur-mer, Arcachon et du Havre (1866—1868). Par le docteur J. L. Soubeiran, secrétaire délégué de la Société d'acclimatation, Professeur agrégé à l'école de Pharmacie. Paris: Librairie de G. Masson. 1871.

Report on the international expositions of fishery at Boulogne, Arcachon and Havre. 8vo, 187 pages.

The first international fishery exposition was held at Amsterdam in 1861, when most of the maritime nations of Europe displayed, besides the products, the various apparatus and appliances which are used by them to secure the numerous products of the sea. Towards the close of the same year the city of Boulogne decided upon a similar exposition in this important French port. The project was ready for execution in 1865, by which time, however, the completion of the new museum at Bergen, Norway, offered an opportunity to hold the second international fishery exposition there, and necessitated the postponement of the one contemplated at Boulogne to the following year, when, simultaneously, a similar exposition took place at Arcachon, which bore more of scientific character, and was mainly ichthyological At the universal exposition of Paris, held in 1867, a certain space was also accorded to the products of the sea and rivers, and in 1868 the city of Havre arranged an international maritime exposition, in which large quantities of commercial products of importation and exportation found a place beside the special maritime products and apparatus.

The author, who had previously reported to the Société d'acclimatation upon the two expositions held outside of France, now reports upon those held in that country, as far as they related to the subjects mentioned before. The report, which was first published in the "Bulletin de la société d'acclimatation," 2 série, t. viii, 1871, now appears in book form, and contains, in a compact form, much valuable information of the various fishes which are of commercial importance, and of the pisciculture now successfully carried on in many countries. The work, though not designed to be exhaustive of the subject, is a valuable addition to the literature on these subjects.

The Lens: a quarterly Journal of Microscopy and the allied Natural Sciences, with the Transactions of the State Microscopical Society, of Illinois. Edited by S. A. Briggs. Publishing Committee: Charles Briggs, E. H. Sargent and Charles Adams. Chicago (177 Calumet Avenue), 1872. 8vo, 64 pages. $3 per annum.

"The Lens" perished in the great Chicago fire before the first number was mailed; the number before us is not an exact reproduction of that ill-fated one. While it will be mainly conducted in the interests of microscopy, valuable contributions on any branch of natural science will not be excluded. A good beginning is made in this first number by an enumeration of the flora of Chicago and vicinity, by H. H. Babcock. The other papers, nearly all original, relate to various subjects connected with microscopy. To judge from this first number, we expect "The Lens" will fill a vacant space creditably, and we wish it that success which it aims to deserve by its original and selected matter, as well as by its well executed wood-cuts and engravings.

VOL. XLIV.] AMERICAN May 3 [NO. V.

JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] MAY, 1872. [VOL. II, NO. V.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

TERMS OF ADVERTISING.

	One Year.	Six Months	Three Months.	One Ins'rt'n.
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Small notices of four lines—half a column—per line, 25 cents. Special rates for Cover.

NOTICE.

The next Pharmaceutical meeting will be held at the College Hall, on TUESDAY, the 21st of May, at $3\frac{1}{2}$ o'clock P. M.

Members, students and others interested in Pharmacy are invited to attend, and to bring drugs, preparations or other objects of interest.

CLEMMONS PARRISH, *Registrar.*

Alumni Association of the Philad'a. College of Pharmacy.

At a special meeting of the Executive Board, held April 11th, 1872, a resolution was adopted directing the Secretary to address the members as follows:

"The advancement of our profession, and the perpetuation of the pleasant associations formed during our collegiate course, are matters of peculiar interest to us all; and in view of the fact that it is impossible for our large and widely distributed membership to meet together, and as it is desirable that our fellowship and interest may be maintained, you are requested to send communications upon subjects, professional or otherwise, which may be of interest to us or the profession at large."

Members who desire the Annual Report, and have changed their residence, will please notify the Secretary, WILLIAM MCINTYRE,
2229 *Frankford Avenue, Philadelphia.*

NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation, which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

WILLIAM PROCTER, JR., ALFRED B. TAYLOR,
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☞ Foreign Exchanges sent to Mr. C. J. Skeet, Bookseller, 10 King William St., Charing Cross, London, W. C., directed "for the American Journal of Pharmacy, care of John Pennington & Son, Philadelphia U. S.," will reach us.

THE

AMERICAN JOURNAL OF PHARMACY.

MAY, 1872.

PHARMACOGNOSTICAL NOTES.

By John M. Maisch.

Read at the Pharmaceutical Meeting held April 16th.

Many interesting questions connected with our indigenous materia medica require investigation, and it is in most cases not easy to obtain the desirable information. The various inquiries instituted within the past few years, in different sections of the United States, into the statistics of this branch of the drug trade, have resulted in total failures, and, except to the initiated, very little is known of the localities where many of the staple articles of our indigenous materia medica are collected for the general commerce, the information being usually limited to the geographical section of the country. The difficulties encountered in such investigations have been well pointed out by Mr. C. Lewis Diehl, in a paper published in the Proceedings of the American Pharmaceutical Association, 1870, p. 137. The knowledge we possess on this particular point appears merely to indicate that the wholesale market has now to depend on the Southern, South-western and Western States for a supply of drugs which were formerly supplied in sufficient quantities by the Eastern and Middle States. While this may undoubtedly be in part accounted for by the increased demand, it must be also to some extent due to injudicious collection, whereby some medicinal plants have become nearly or entirely extinct in certain localities where formerly they were frequently met with.

The same cause appears to have had already similar results in some Western localities. In Professor Diehl's paper, cited above, we find the following passage, which seems to point in this direction: "Formerly there was a lively trade in indigenous drugs in New Albany,

Ind. (gathered among a range of hills known as 'the Knobs'), but such is not now the case, and the drugs gathered in its neighborhood find their markets no farther than our city (Louisville, Ky.)" Apparently the same wasteful practice, satisfied with the results of to-day, without looking to the demands of the morrow, prevails among the drug gatherers of this country as in South and Central America, and it is not improbable that the time may not be far distant when a few of the leading drugs may require to be cultivated to insure a full and continuous supply of the market.

Although many of our indigenous plants have been used in domestic and in regular practice, the use of some seems to be confined altogether to certain localities, beyond which their medicinal properties are unknown or not appreciated. It would be very interesting to obtain reliable information concerning them.

The following notes are intended to direct attention to a few articles of our indigenous materia medica, nearly all of which deserve to be further investigated:

Cypripedium.—The secondary list of the Pharmacopœia of the United States directs the rhizome and rootlets of *Cypripedium pubescens*, Willdenow. Under the common names of ladies' slipper, and American valerian, two entirely distinct rhizomes, with the rootlets attached, are met with in commerce, both of monocotyledonous origin. The only species of this genus which I have met with in the neighborhood of Philadelphia is *Cypripedium acaule*, Aiton, the radical portion of which has not been observed by me among the commercial ladies' slipper root. The officinal species appears to grow as far south as Georgia, and west to Wisconsin. Gray* states that it is common northward and westward, and southward in the Alleghanies. Dr. Porcher† says it occurs near Newbern. Dr. Darlington‡ mentions, twenty years ago, that it was formerly frequent in Chester County, Pa., and it is probable that the plant is now of rarer occurrence yet.

Another species, which, like the one mentioned, bears flowers with yellow lips, is *Cypripedium parviflorum*, Salisbury, which appears to be most common west; though usually smaller than the former, it attains the height of 1 to 2 feet, the two species appearing to pass into each other (Gray). *Cypripedium candidum*, Muhlenberg, and

* Manual of the Botany of the Northern United States.

† Resources of the Southern Fields and Forests, p. 603.

‡ Flora Cestrica, 3d edition, 1853, p. 316.

spectabile, Swartz, both with white-lipped flowers, occur mainly in the Alleghanies and west thereof, and it is not impossible that they may furnish a portion of the commercial root, while *C. arietinum*, R. Brown, the smallest species, occurring in Canada and the northern border States, is probably not collected.

For a number of years past I have been endeavoring to procure the four species first mentioned, with root and flowers, but have been unsuccessful. Mr. F. C. Weber, while at New Albany, Ind., last year, tried to aid me in my endeavors, and obtained from an old herbalist there the information that *C. pubescens* and *parviflorum*, both of which plants he described correctly, are collected there indiscriminately. At Mr. Weber's request, he collected one plant with the roots and the green fruit, the only one, he stated, he could find, which he palmed off as the first-named species, but which was promptly recognized by me as *Uvularia perfoliata*, Lin. This deception was doubtless purposely attempted.

No better success attended my inquiries of dealers in indigenous drugs, who appear to sell these goods without questioning their identity, relying upon the statements of the Western collectors. The only way to arrive at correct results is to have complete specimens of the different species collected, so that their roots may be compared with the commercial article. The writer would feel indebted to any reader of the "Journal" who would procure for him one or more of the species in question.

Cephalanthus occidentalis, Lin., *Rubiaceæ*, button-bush, or pond-dogwood, is a shrub 5 to 10 feet high, common throughout Canada and the United States in swamps and on the margin of ponds and brooks. The bark has been repeatedly recommended as an expectorant useful in consumption, but I believe has been abandoned, though it may be used yet as a domestic remedy. Last fall a sample of the bark, with a flowering branch, was received from Texas, where a gentleman claimed that the bark had wonderful curative properties; of what character was not stated. If we may judge from the slight bitter taste, which is destitute of acrimony, it may probably possess tonic properties.

Ilex Cassine, Lin., *Aquifoliaceæ*, grows near the coast from Virginia southward, and is known there under the names of cassena, yeopon, yupon or yaupon. It appears to have been held in high repute

by the aborigines, and to be still used to a considerable extent near the North Carolina coast.

Dr. Porcher* states that the Creeks employed it, according to Elliott, at the opening of their councils sending to the sea coast for a supply; they considered it one of their most powerful diuretics. The inhabitants of North Carolina purify brackish water by boiling in it cassena leaves. In North and South Carolina much use is made of the leaves for making tea. The leaves act as a powerful diuretic, and are employed in calculous, nephritic diseases, diabetes, gout and small-pox. The so-called black drink of the Indians, which in its effects resembled opium, was believed by some to have been made from these leaves, but by other writers is referred to various unknown roots.

In a letter written three years ago, Mr. Chas. K. Gallagher, of Washington, N. C., to whom I am indebted for some of the leaves, states that they are used extensively along the eastern coast of that State, and that they are cured for use by heating in ovens with heated stones, and constantly stirring during the process, as practiced by the Indians.

The cassena is an evergreen shrub, attaining a height of 10 to 15 feet; the leaves are alternate, coriaceous, short petiolate, about an inch long, varying in shape from roundish oval to lanceovate, obtuse and slightly emarginate, crenate with a minute spine inserted near the base of each crenature, smooth on both sides and shining above; their taste is mildly astringent and tea-like, scarcely bitterish.

It would be very interesting to ascertain whether cassena contains caffeina, like the so-called Paraguay tea, which is obtained from *Ilex Paraguayensis*, Lamb.†

Artemisia Ludoviciana, Nuttall, *Compositæ*, was sent to me, two years ago, from Kansas, where a package of it had been received by an army officer from Colorado, with the statement that it would "make the hair grow," if applied in the state of infusion. The plant is indigenous to North America, and grows from the shores of Lakes Huron and Michigan south-westward to Missouri and westward to the Pacific Ocean. It is from 2 to 4 feet high, branched; leaves lanceolate, sessile and entire above, the lower variously toothed, canescent on both sides, with a dense, closely adpressed wool; heads small, ovoid, nearly sessile, crowded in dense, somewhat leafy panicles;

* Loc. cit., p. 431.

† See the paper on Yaupon, by Mr. Henry M. Smith, in this number.

receptacle smooth. The odor reminds of wormwood, but is much weaker; the taste is similar, though but slightly bitter.

The plant has probably tonic properties, but appears not to deserve a place alongside the numerous bitter aromatic tonics at the present time medicinally employed.

Pycnanthemum linifolium, Pursh., *Labiatæ*, in some places called Virginia thyme, was sent to me, a year or two ago, as the remedy successfully used by an empiric in Montgomery County, Pa., in cases of hydrophobia. It is hardly creditable that this plant could be of any value in this fearful disease, possessing, as it apparently does, merely somewhat stimulating and diaphoretic properties, like most species of this order, in consequence of the small quantity of volatile oil which it contains. It is smooth throughout, about 1½ to 2 feet high, with the linear and sessile leaves ½ to 2 inches long, rigid, entire, three-nerved, often crowded in small axillary fascicles; the branches are erect and form a rather dense corymb; the flowers terminate the branchlets and are crowded into hemispherical heads, supported by imbricated ciliate bracts, which, like the awl-shaped calyx teeth, are rigid and sharply pointed; corolla whitish or pinkish, dotted on the inside.

Pycnanthemum incanum, Michaux, mountain mint or wild basil, is also called horsemint in some counties of Pennsylvania where *Monarda punctata*, Lin., does not occur, in place of which it is used. The two plants are easily distinguished, the bracts of the former being linear, almost subulate, while those of the monarda are leaf-like, and of a yellow and reddish color. The medicinal properties of both are probably identical.

LYCOPERSICUM ESCULENTUM.—TOMATO.

By Thomas D. McElhenie.

Extracted from his Inaugural Essay.

My experiments have been directed solely to the isolation of the organic acids contained in the fruit, the examination being undertaken at the suggestion of my preceptor, Mr. T. A. Lancaster, who had in an essay, presented in 1859, demonstrated the presence of tartaric acid, but expressed the opinion that citric acid would be found to exist in it in larger proportion, and probably in sufficient quantity to render

it available as a commercial source of the acid. The variety on which I operated was the red tomato known in market as the "Tilden"; this is quite solid, of a medium size, and contains comparatively little juice. There are other inferior varieties which contain a larger amount of juice and have more acidity of taste, and I expect these would be found to contain a larger proportion of acids; but being at the time unable to procure any of them I was obliged to content myself with an examination of the variety named.

I have employed two processes in my examination, the first being mainly that given in the British Pharmacopœia for the preparation of citric acid from lemon juice.

One gallon of juice, freshly expressed from fully ripe tomatoes, was heated to the boiling point and strained. Keeping it at about 200° F., powdered chalk was added until effervescence ceased. After cooling, the precipitate was separated by straining and filtration, and mixed with two pints of water. To the mixture was gradually added three pints of water, mixed with four fluidounces of sulphuric acid, some effervescence being produced, probably due to an excess of calcium carbonate. The mixture was boiled gently for half an hour and filtered. The filtrate, after partial evaporation, was set aside to allow any calcium sulphate which might be present to crystallize. After standing twenty-four hours the liquid was decanted—there being a slight sediment but no crystals—and evaporated until a slight film began to form on the surface, when it was again set aside.

After standing about three weeks there was a considerable deposit of brown extractive matter, having a crystalline appearance, from numerous small crystals imbedded in it. As this extractive evidently retarded the formation of crystals, and being pressed for time, I continued the evaporation, at a gentle heat, until the whole was reduced to the consistence of an extract, which I brought with me on my return to the College, for further examination.

Upon resuming operations in the laboratory of the College, I first made a preliminary examination of a small portion of the mass, according to the method directed in Will's tables, and found present citric, malic and oxalic acids. In order to isolate them, the mass was boiled with a sufficient quantity of water, and the solution filtered. A small quantity of inert matter was left undissolved. The filtrate was neutralized with calcium hydrate, and the precipitate separated by filtration, and reserved.

The filtrate from this was evaporated and boiled until the calcium citrate was precipitated, which was then washed with hot water, on the filter, mixed with a small quantity of pure water, and decomposed by dilute sulphuric acid; the calcium sulphate was allowed to deposit, the liquid was filtered, concentrated and set aside.

After three days a number of crystals were found deposited, but mixed with some viscid coloring matter.

The mother liquor was decanted, and after concentration was set aside for further crystallization. The first crystals were dissolved in a small quantity of distilled water, the solution filtered, concentrated and set aside. After standing twenty-four hours no crystals had formed in either liquid. They were then mixed, concentrated and filtered. After standing about two weeks a small quantity of crystals had formed.

These were separated and the mother liquor again concentrated, when a very small product was obtained.

Owing to press of other duties I did not purify the resulting crystals. The yield was, however, very slight, being probably ten grains from one gallon of fresh juice, equal to about nine pounds of fruit.

To obtain the malic acid, the filtrate left after precipitation of calcium citrate by boiling was concentrated, and calcium malate was separated by the addition of alcohol. Allowing it to subside, it was separated by filtration and the filtrate again treated with alcohol to separate any remaining malate. A small quantity was obtained, and after filtration it was mixed with the first product. This was then dissolved in a small quantity of hot water, the solution filtered and, after partial evaporation, mixed with an equal bulk of alcohol, and the mixture treated with dilute sulphuric acid.

The resulting calcium sulphate was separated after it had completely subsided, and the filtrate, containing malic acid in dilute alcoholic solution, was partially concentrated. After standing twenty-four hours, no crystals having appeared, it was further concentrated and set aside.

After standing about two weeks, I found it had deposited a quantity of colored inert matter. It was again partially evaporated and filtered, and in a few days a quantity of crystals were obtained.

While engaged in purifying these with animal charcoal the entire product was lost by the accidental breaking of the capsule containing the solution, so that I was unable to ascertain the exact weight of the purified product. It was, however, larger than that of citric acid.

To obtain the oxalic acid, the precipitate obtained by neutralizing the original solution with calcium hydrate was treated with hydrochloric acid, the solution diluted, filtered and neutralized by ammonia; when calcium oxalate was precipitated.

This was boiled with a solution of potassium carbonate for two hours, and filtered to separate calcium carbonate. The filtrate was then mixed with alcohol to just below the point of precipitation, and the mixture treated with dilute sulphuric acid. The potassium sulphate being insoluble in alcohol, readily subsided, leaving oxalic acid in alcoholic solution.

This was then partially evaporated and set aside. After standing several days a deposit of coloring and extractive matter was formed. This was separated, and the solution further concentrated and treated with animal charcoal.

After a few days I obtained a quantity of small crystals. These were dissolved in a small quantity of distilled water, and again treated with animal charcoal and recrystallized. The yield was about equal to that of malic acid.

The second process was as follows: One gallon of fresh juice was boiled down to the measure of two pints. This was set aside and occasionally observed. After it had been standing about two weeks I found no result except the formation of a considerable brown deposit of extractive. It was then mixed thoroughly and evaporated at a gentle heat to about three fluidounces.

This was then operated on in essentially the same manner as the first, diluting the liquid, filtering and neutralizing with calcium hydrate, and then isolating the acids from their lime salts.

The results were similar, the yield of malic acid being rather larger. It has been stated tartaric acid existed in tomatoes in small quantities. I failed to obtain it, but hope at some future time to continue an investigation of various small acid fruits, and repeat that of tomatoes with better facilities. I infer from the results obtained that the acids exist uncombined in the fruit.

It is evident, however, that tomatoes are not available as a source of either of the acids.

SUPPOSITORIA ASSAFŒTIDÆ.

By Benjamin T. Fairchild.

From the Author's Inaugural Essay.

After speaking of the value of suppositories as medicinal preparations, and advocating the use of cacao butter as a vehicle, without the addition of wax or similar substances, the author dwells on the difficulty of making suppositories containing assafœtida, and suggests, as reasons, the impurities usually present, the impossibility of obtaining and keeping assafœtida in the state of powder and its proximate composition, particularly the presence of gum and bassorin. He proposes an extract free from the impurities and the gummy constituents, for which he proposes the following formula:

℞. Assafœtida, selected tears, ... ℥iij.
Alcohol, sp. gr. 817 . . . . q. s.

Reduce the assafœtida to a moderately coarse powder, which is accomplished by first subjecting it to a freezing temperature, then mix with an equal bulk of sand and pack it moderately in a glass percolator. Pour on alcohol until it has equally permeated the mixture and appears through the sponge at the neck of the percolator. Then, having corked and covered tightly to prevent evaporation, allow it to macerate for several days. Displace two fluid ounces, and set this aside; continue the percolation until the drug is thoroughly exhausted. Evaporate spontaneously the last obtained tincture until the alcohol has been entirely driven off. Mix the product with the percolate first obtained, and evaporate as before until the resulting extract weighs two troy ounces, or until free from alcohol. It should be kept in a wide-mouth, closely-stoppered vial.

Thus obtained, the extract has a thick, semifluid consistence, a yellow color, and consists entirely of the resins and volatile oil. It possesses in a marked degree the sensible properties of the drug. Two-thirds of a grain represents about *one* grain of the pure gum resin.

This extract possesses many advantages. It may be easily preserved, and is of such a consistence that it can be readily manipulated, requiring simply to be mixed with the excipient. By its use suppositories can be quickly prepared, elegant in appearance and satisfactory in all respects.

My attention has been called to an article in the Sept. No. Amer. Jour. Pharm., 1868, by Mr. J. B. Moore, in which he advocates the

employment of liquor potassæ in the manufacture of suppositories of assafœtida. By the use of the alkali, he saponifies the resin and volatile oil of the gum-resin and thus facilitates its admixture with the cacao butter. The use of so powerful a medicinal agent, however, is not necessitated.

By the following formula I have prepared suppositories of ten grains each:

℞.	Ext. Assafœtidæ	gr. lxxx.
	Olei Theobromæ	ʒv.

M. fiant suppos. No. xii.

Have at hand some warm water in a dish into which a small capsule containing the powdered cacao butter can be immersed. Remove the capsule frequently, in order that the cacao butter shall melt slowly. When it has cooled sufficiently and retains but little heat, rub up the extract with a small portion of it on a marble slab, mix this thoroughly with the reserved portion in the capsule, and pour (constantly stirring) into moulds of the capacity of half a drachm each. If necessary, during the process, the capsule may be again immersed in the warm water, great care being observed to subject the mixture to as little heat as possible.

If the moulds are perfectly dry and clean, and suspended in iced water until quite cold before pouring, the suppositories may be removed by simply pressing them at the base with the finger, and striking the rim of the mould on the counter. The resulting suppositories will present a beautiful polished surface. I have never found it necessary to lubricate the moulds in any manner.

If care is used in the above process, the resin will be found to be equally and intimately suspended in each suppository.

PHARMACEUTICAL NOTES.

By Emil Martin.

Red Precipitate Ointment.—The U. S. Pharmacopœia directs lard ointment for making unguentum hydrargyri oxidi rubri, but having had frequent difficulty in preserving the beautiful reddish color of the ointment I was induced a few years ago to institute a series of experiments to obtain a more permanent and reliable preparation. After many experiments I became convinced that a compound of castor oil and white wax would just be what I wanted.

The following is the formula I have adopted:

℞. Hydrarg. Oxid. Rub. subt. pulv., ℥i.
Olei Ricini, ℥vi.
Ceræ Albæ, ℥ii.

Misce l. a.

This ointment will preserve its beautiful reddish color and proper consistence for years without change.

Fowler's Solution.—I have altered the process of the U. S. Pharmacopœia for making Fowler's Solution, it being too tedious, and requiring at least from 2 to 3 hours' boiling or the heat of a water-bath. I would therefore submit the following mode of preparation:

Take of arsenious acid, in pieces, and bicarbonate of potassa each 64 grs. Immerse them into a test-tube of the capacity of 1 oz. or more; add the smallest quantity of distilled water that is necessary, about 2 to 3 drachms, and boil the mixture over an alcohol or gas lamp. The carbonic acid will be evolved, and the combination of arsenious acid with the potassa formed immediately in less than two minutes. To the solution add sufficient distilled water and ½ oz. comp. spirits of lavender, to make it measure 1 pint, and filter. By taking 6 drachms of water, or more, I could not procure a perfect solution within an hour, even by using a test-tube. My opinion is that only a very concentrated solution of the potassa carbonate dissolves the arsenious acid so quickly.

This method will enable a skillful pharmaceutist to make a gallon of unfiltered Fowler's Solution in about 5 minutes, which is less time than many extemporaneous prescriptions require.

Indianapolis, March 22, 1872.

MEL ROSÆ.

By E. C. Trembly.

From the Author's Inaugural Essay.

My attention was first called to this subject by hearing the complaints of others, more experienced than myself, against the officinal preparation. Subsequently, I met with a sample that had been made strictly according to the standard formula, and kept in a glass-stoppered bottle, in a state totally unfit for use, owing to a deposit of saccharine matter that had gone on until the entire quantity had assumed a non-fluid condition.

The subject became interesting, and I examined it with a view to the discovery of the source of the difficulty, and, if practicable, a means whereby to improve the preparation.

My conclusions were these:—

First, that honey, by reason of its tendency to deposit, its ever-varying and uncertain composition, was most likely the cause of the trouble. Second, that the process for the extraction and preservation of the medicinal virtues of the rose, affords ample room for improvement.

To obviate the inconvenience arising from the presence of honey, I have prepared and used with great satisfaction a fluid extract of rose, to which honey is added in proper proportion, at the time when wanted for use. I desire to call special attention to this extract, for reasons given further on.

The following is the formula which is the most satisfactory of several that I have tried:—

℞.	Red Rose, No. 60, ...	℥ij.
	Stronger Alcohol, ...	f℥v.
	Glycerin Conc., ...	f℥ivss.
	Diluted Alcohol, ...	q. s.

Moisten the powder with q. s. of the strong alcohol, pack it moderately in a small glass funnel, and gradually pour upon it the remainder of the stronger alcohol.

When it has disappeared from the surface, gradually pour on a mixture consisting of five and a half fl. oz. of diluted alcohol and a half fl. oz. of glycerin, and when it has passed from the surface, continue with diluted alcohol until twelve fl. oz. of percolate have been obtained.

To the first four fl. oz. add a half fl. oz. of glycerin, and set aside to evaporate spontaneously to two fl. oz. To the remainder add two fl. oz. of glycerin, and evaporate by means of a water-bath, at a temperature not exceeding 140° Fah., to such an extent that, when added to the reserved portion and the remainder of the glycerin, the whole will weigh seven troy ounces.

In the above will be noticed my deviations from the "officinal," which, since the result has been so very satisfactory, I consider improvements.

Strong alcohol is used as the first portion of the menstruum because it is a better solvent for the volatile ingredient, and it evapo-

rates readily at low temperatures, thus rendering it unnecessary to expose that principle to more than ordinary atmospheric influences.

The employment of glycerin in the second portion of the menstruum was suggested by its known solvent power over the astringent principles, and its addition to both portions prior to evaporation, serves to protect the substance from the action of the air, to prevent separation of the particles and adhesion to the sides and bottom of the vessels employed.

To the finished product, which is free from alcohol, it serves as a sure preservative, and to enhance the preparation in appearance and taste, if not also in therapeutic value.

It will be seen also that I have duly regarded the importance of limited temperature in the evaporation of the second portion, while in the "officinal" it is left to the mercy of the entire range of the water-bath.

These restrictions, with regard to the application of heat, are perfectly clear, when the delicate character of the substance and the enhancing effect of fragrance in an article like this are duly considered.

From my experience with this extract for about eight months, and the known power of glycerin as a protective, I feel safe in asserting my belief that it will remain unchanged for almost any length of time. The fact of its being permanent, and the facility which it affords in the preparation of "Mel Rosæ," are alone sufficient to give it character; but they are by no means all the advantages it possesses. The most important are exhibited in the production of a suitable remedy, both for internal and external uses, to which the virtues of its constituents are applicable.

As an internal application to the mouth and throat, which is the chief use of "Mel Rosæ," it may be used in full strength without inconvenience, and when desired weaker, may be reduced by any of the ordinary diluents. With water it forms a delightful and efficient gargle, which is not equalled by the officinal article. As an external application, its astringency, consistence and fragrance, render it a valuable and agreeable remedy. It may be applied most conveniently by means of a camel's-hair brush. For those who may still prefer to complete their "Mel Rosæ" at once, I suggest the following:—

℞	Fluid Extract of Rose, ...	℥j.
	Pure Honey, ...	℥iij.

M.

The above proportion approaches so nearly to the original that I use it for convenience. In this case it is very necessary to use *pure* honey, and to insure himself the apothecary should procure it in the comb and render it for use, as that found in the market under the name of "clarified honey" is of uncertain character, and generally contains impurities.

I also made some experiments with the officinal formula, the results of which tend to show that the tendency to change and become unmanageable is not overcome by very careful management.

I made lots with honey obtained from three sources,—one from Cuba, another from New York (wild), and a third domestic, procured in the comb and clarified by myself, and designated in the experiments, pure honey. With each of these varieties of honey I made another lot, by adding the proper proportion of the fluid extract of rose, and placed them all in a warm place on the upper shelf in the store-room. At the end of five months those made by the officinal process were in the following conditions: That made with Cuba honey in a state of fermentation and deposition; the other two but little changed, though apparently becoming gradually thicker. Those made with the fluid extract were in their normal condition. In both instances the sample with pure honey was much the nicest.

The first translation of the London Dispensatory, by Nicholas Culpepper, in 1650, contains a formula for "Honey of Roses," of which the following is a copy *verbat. et literat.*, in the quaint style of that age:—

"Take of the best Honey clarified, ten pound, the Juyce of fresh red Roses one pound, put them in a pan over the fire, and when they begin to boyl ad four pounds of fresh red Roses, the whites being cut off, let it boyl till the juyce be consumed, continually stirring it and so keep it for your use being strained."

It seems strange that such a formula should ever have existed, and still stranger is the fact that the preparation came down through nearly two centuries with but little change and scarcely any improvement. It is only of late years that it has been scientifically improved.

SYRUPUS CUBEBÆ.

By Charles L. Mitchell.

The efficacy of cubebs as a stimulating expectorant in diseases of the throat and lung passages has long been known to the medical pro-

fession. But there has been a want of some agreeable and palatable form of administering this nauseous remedy. In the form of powder it is too bulky, and its principal preparations, namely, the tincture, oleoresin and fluid extract, are all too disagreeable to suit an invalid. When mixed with syrups or other liquid vehicles, they form turbid, muddy liquids, in which their unpleasant taste is but partially disguised. Having on several occasions to prepare mixtures of fluid extract of cubebs with different syrups, the idea suggested itself that a syrup of cubebs might be made on the same plan as the syrups of tolu and ginger of the Pharmacopœia, and, in a measure, obviate the above-named objections to its use. After several experiments, the following formula gave a syrup which seemed satisfactory in almost every respect. It was clear and bright, of a rich yellow color, and seemed to possess all the virtues of the cubebs without their disagreeable taste:

Fld. Ext. Cubebs	f℥ij.
Carb. Magnesia	f℥s.
Sugar Powd.	℥xij.
Orange Flower Water	f℥ij.
Water	q. s.
Ess. Oil Almonds	gtt. j.

Rub up the fld. ext. with the carb. magnesia and then add ℥ij. of the powd. sugar in small portions. When thoroughly mixed add gradually first the orange flower water and then f℥vij. water, constantly triturating the mixture until the sugar is dissolved. Filter and add q. s. water through the filter to measure f℥xj., in which dissolve the balance of the sugar without heat. Add the oil almonds cut in a little alcohol, and again filter, adding, if neccessary, q. s. water through the filter to measure 1 pt.*

The dose of this syrup is f℥j—iv. and it may be given in even larger doses if desired. It may also be made by using the officinal oleoresin in the proper proportion in place of the fluid extract.

A very elegant syrup for coughs, hoarseness, &c., may be made from this syrup of cubebs, as follows:

℞. Syr. Cubebæ.	
Syr. Pruni. Virg. *aa*	f℥ij.
Morph. Sulphat.	gr. ¼.

Dose from f. j—iv.

* 11 fluidounces of liquid and 10 troyounces of sugar will, after solution, measure nearly f℥xvii. The proposed syrup most likely, does not contain the diuretic principle, cubebic acid.—Ed. Amer. Jour. Pharm.

ON THE USE OF PETROLEUM-BENZINE IN MAKING OLEO-RESINS.

By John M. Maisch.

Read at the Pharmaceutical Meeting of April 16th.

Petroleum benzine is an excellent solvent, and has been repeatedly suggested for introduction into the pharmaceutical laboratory, particularly when, in consequence of the high tax upon alcohol, the price of ether and the other derivatives thereof was even higher than at present. It is not unlikely that the so-called benzine may have been substituted wholly or in part for ether before experiments on this subject were published.

In 1866 Professor Procter* proved that cubebs, after having been exhausted by the solvent in question, yielded to ether over 4 per ct. of cubebin, waxy matter, chlorophyll, with a little pungent resin. Mr. H. N. Rittenhouse† therefore suggested to prepare oleo-resins by employing first ether, and finish the percolation with petroleum benzine. In 1867 an interesting discussion on this subject took place at the meeting of the American Pharmaceutical Association,‡ but the facts at that time published were very few in number.

At the close of the last session of the Philadelphia College of Pharmacy two essays were presented, both treating of this question from a different standpoint, without, however, exhausting it. Notwithstanding this, the results are sufficiently interesting to deserve notice. Mr. Alfred H. Bolton treated powdered capsicum, cubebs and ginger with petroleum benzine, spec. grav. 700, and exhausted them by the process of repercolation, whereby the powders were left entirely or almost tasteless; three troyounces of the powders named yielded respectively six, four and one fluidrachms of oleo-resins.

Mr. Milton W. Roth operated on ginger and cubebs, and observed that these substances, when exhausted by petroleum benzine, spec. grav. 686 to 710, would again yield to ether some nonvolatile matter, which it is to be regretted was not sufficiently examined; the benzine oleo-resins of both drugs were perfectly soluble in ether, but the etherial oleo-resins yielded precipitates on being mixed with benzine. It follows conclusively from these experiments, what Prof. Procter (loc. cit.) proved in 1866 for cubebs, that the benzine oleo-resins are not

* American Journal of Pharmacy, 1866, 210.

† Proceedings of the American Pharmaceutical Association, 1866, p. 208.

‡ Proceedings, 1867, page 94.

identical with the officinal etherial oleo-resins, while Mr. Bolton, from the tastelessness of the residuary powder, argues or rather is inclined to regard the two products as representing the drugs in question.

The absence or presence of odor and taste, however, are too unsafe criteria of the medicinal properties, since some decidedly active principles, like santonin, the resins of jalap and scammony, &c., are tasteless or nearly so, while the experiments of Dr. Bernatzik,* Mr. F. V. Heydenreich,† and of E. A. Schmidt,‡ prove that the volatile oil of cubebs has no diuretic properties whatever, but acts as a carminative, diffusive stimulant and irritant, like most other volatile oils.

Petroleum benzine is such an excellent solvent, and at the same time so low in price, that its employment in the place of ether and even alcohol is very desirable; but, from all the knowledge we possess thus far, based upon critical experiments, the substitution of the liquids in question for pharmaceutical preparations must be regarded as inadmissible until it has been proven that the proximate principles not acted upon by the benzine are medicinally inert; odor and taste alone are insufficient to furnish this proof.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Analysis of the Leaves of Periwinkle (*Vinca minor, Lin.*)—The leaves, which are used in France as an anti-lactagogue, contain, according to Stanislas Martin, tannin, extractive, bitter resin, chlorophyll and wax. Bisulphide of carbon separates from the powdered leaves the resin, which has a very agreeable odor.—*Bulletin de la Soc. roy. de Pharm. de Brux.*, 1872, *Mars.* 113.

A New Acid from Aloes was obtained by Prof. Weselsky, besides orcine, on fusing aloes with hydrate of potassa. It crystallizes well and shows characteristic color reactions with ferric chloride, with alkalies in the presence of oxygen, and with alkaline hypochlorites (purple); when heated its odor resembles coumarin. Composition, $C_9H_{10}O_3$. Fused with potassa until hydrogen is generated, orcine is produced.—*Anz. Akad. d. Wiss. Wien*, 1872, *No.* iv.

* Amer. Jour. Med. Sc., cvii, 534. Proc. Amer. Pharm. Assoc., 1868, 194.
† Proc. Am. Pharm. Assoc., 1867, 337. Amer. Journ. Pharm., 1868, 42.
‡ Amer. Journ. Pharm., 1870, 222.

Sugar in Urine.—Prof. Seegen observed that the precipitation of cuprous oxide from Trommer's test by small quantities of sugar is prevented by certain constituents of urine, while uric acid produces a reaction similar to that of glucose. The author filters the urine through good blood charcoal, which is afterwards washed with a little water. The charcoal retains all the uric acid, and the washings are used for the detection of sugar, and react with Trommer's test, if the urine contains only 0·01 per ct. sugar, unless it is of a high specific gravity, which case 0·05 per ct. sugar are readily detected.

This method is not applicable for the quantitative determination, since the blood charcoal retains much sugar, which cannot be extracted by cold or hot water.—*Ibid., No.* v.

Analysis of Melolontha vulgaris.—The cockchafer or May-bug contains, according to an analysis by Dr. Ph. Schreiner, considerable quantities of oxalate of lime, uric acid and urates, some leucin, sarkin and indistinct traces of xanthin, and melolonthin, a crystallizable body of the composition $C_5H_{12}N_2SO_3$.—*Annal. d. Chem. u. Ph.,* 1872, *March,* 252—262.

Pyro-catechin in Kino.—Prof. Flückiger obtained from African and East Indian kino (from *Pterocarpus erinaceus* and *marsupium*), also from butea gum, products which reacted like pyrocatechin. Wiesner examined last year* sixteen similar drugs, and observed that this compound is probably always present therein. The powdered substance is treated with ether, this solvent evaporated, and the residue dissolved in water. Dilute ferric chloride added to this solution imparts a green, limewater a red color. Since kino is obtained by evaporation of the juice of the plants, it is probable that pyrocatechin is present in the plant, and not a product formed at an elevated temperature, as has been often supposed.—*Ber. d. d. chem. Ges. zu Berlin,* 1872, 1—4, *and* 47.

Artificial Conia.—Hugo Schiff gives some additional information† on this artificial alkaloid, in the separation of which from the other products of decomposition he avoids the use of platinic chloride by repeated fractional distillation. The most important difference between the native and the artificial alkaloids lies in the absence of all

* Zeitschr. d. œsterr. Apoth. Vereins, 1871, 499.

† See Amer. Journal of Pharmacy, 1871, 161.

rotating power in the latter, which shows also slight but constant differences in the behavior to muriatic acid, nitrate of silver and chloride of gold; the effects of both upon frogs, cats and dogs were found to be identical. The author proposes the name of *paraconia* for the artificial alkaloid.—*Ibid.*, *p.* 42—44.

Estimation of Fat in Milk.—A. Schukoffsky mixes 20 cc. milk, 20 cc. ether, and 30 cc. strong alcohol, and sets the mixture aside for 24 hours; milk sugar crystallizes out and casein is precipitated in flocks, and may be readily washed upon a filter with ether and alcohol. From the filrate the ether is distilled off, then the alcohol evaporated completely in a water-bath; the residuary liquid is now treated with ether, the etherial solution removed by means of a separatory funnel, and finally evaporated to recover the fat.

The author claims for this method greater accuracy than can be attained by following Tolmatsheff's (treatment of milk with sulphate of magnesia), Haidlen's (with gypsum), Trommer's (with marble dust), or Hoppe-Seyler's method (treatment with potassa solution).—*Ibid.*, 75—77.

Estimation of Glucose.—F. Jean dissolves the protoxide of copper, obtained by boiling the glucose with a solution of tartrate of potassa, and copper, in muriatic acid; this solution is rendered strongly ammoniacal and mixed with a solution of nitrate of silver in ammonia. Metallic silver is precipitated, 5 equivalents (315) of which correspond with one equiv. (100) of glucose; 100 cane sugar after conversion into glucose yield 316 silver.—*Journ. de Pharm. et de Chim.*, 1872, *Mars*, 206.

Manna of the Linden-tree.—Boussingault observed, near Liebfrauenberg, in 1869, upon the leaves of a linden-tree, a viscous matter which he found to correspond closely in composition with the manna of Mount Sinai, as ascertained by Berthelot:*

	Linden Manna, collected July 22,	August 1st, 1869.	Tamarix Manna of Mount Sinai.
Cane Sugar,	48·86	55·44	55
Invert Sugar,	28·59	24·75	25
Dextrine,	22·55	19·81	20

—*Ibid.*, 214—218.

* American Journal of Pharmacy, 1862, p. 71.

An Egyptian Perfume, examined by Personne, was in the form of a cake with a rugose surface, of a chocolate color and a resinous appearance upon the fracture, with the central portion white; it was found to be composed of a mixture of fat, chalk, frankincense and myrrh, with a small quantity of benzoin. Some time after the mixture has been made, a lime soap is formed, which prevents the rapid combustion, and keeps the mass from becoming too soft. This mass is well known in Egypt and very common among the fellahs; its Egyptian name, which is pronounced *boohkurre-bar*, signifies Arabian or border perfume.—*Ibid.*, 254—256.

Turbid Wine of Colchicum Seeds contains, according to Vulpius, a large number of minute yeast cells, originating, probably, from the nitrogenated principles of the seeds. They will readily pass through the filter, but may be removed by agitating the turbid wine with finely powdered colchicum seeds, in the proportion of about 1000 to 1, and filtering immediately and repeatedly through the same filter, after which it will remain clear for many months.—*Pharm. Centr. Halle*, 1872, *No.* 10.

A Histological Description of Condurango Bark has been furnished by Prof. Dr. A. Vogl. From its structure the author is inclined to refer it to an euphorbiaceous plant. The dichotomously branched laticiferous vessels have the same character as those usually met with in *Euphorbiaceæ.**—*Zeitschr. d. œsterr. Apoth. Ver.*, 1872, *No.* 5.

Guaco Sold as Condurango.—It appears that in the European market the stalks of *Mikania Guaco*, H. B. K., nat. ord. *Compositæ*, are sold as condurango.†—*N. Jahrb. f. Pharm.*, 1872, *Feb.*, 68.

Analysis of Sarracenia purpurea.—E. Schmidt found in it cellulose, gum, albumen, resin, sarracenic acid, which is coloring matter, yielding with alum a nice yellow lake, and which is soluble in alcohol, little in ether and benzine; tannin, fat, wax, 11·43 per ct. water, and 3·32 per ct. ashes, consisting of lime and potassa silicates, phosphates

* The description corresponds with that variety of condurango which has been introduced here under the name of *Mata perro*, which comes from an *Asclepiadeacea*. See this Journal 1871, p. 568.

† We have not met with this drug in our market as the now notorious cancer specific, although we have seen not less than five or six barks which, on the west coast of South America, are known by the name of condurango.—Editor Amer. Journ. Pharmacy.

and sulphates, and traces of chlorides.—*N. Jahrb. f. Pharm.*, 1872, *Feb.*, 98, from *Gaz. Méd. de Strassbourg*, vii, *p.* 78.

Extract of Meat.—Dr. R. Goddefroy analyzed some La Plata extract of meat, prepared by A. Benites & Co., Buenos Ayres, and also some Fray-Bentos extract. The results are as follows:

	La Plata.	Fray-Bentos.	Limits in Genuine Extracts, according to Liebig.
Water,	16·92 per ct.	18·69 per ct.	16—21 per ct.
Ashes,	19·07 "	21·14 "	18—22 "
Combustible compounds,	64·00 "	60·16 "	
Extractive soluble in 80 per ct. alcohol,	64·28 "	Not estimated.	56—66 "
Chloride of sodium,	2·8 "	1·99 per ct.	None.

The author recommends the La Plata as equal to the Fray-Bentos extract and as reliable, as long as it is analyzed by chemists like Professors Depaire and Jouret.—*Zeitschr. d. œsterr. Apoth. Ver.*, 1872, *No.* 7.

Contributions to the Knowledge of the so-called False Cinchona Barks.—Under this title Professor Flückiger publishes in Neues Jahrbuch für Pharmacie, 1871, Nov. and Dec., p. 291—302, a most important paper, from which we condense the following results:

Dr. O. Hesse discovered, in 1870, in *quina blanca* from Payta, the alkaloid paytina, $C_{21}H_{24}N_2O+H_2O$, of which it contains $2\frac{1}{2}$ per cent. The tree from which it is obtained is supposed by Dr. Flückiger to belong to the *Cinchonaceæ*, but not to the genus *Cinchona;* but the bast fibres have the same structure as those of the true cinchonas. The alkaloid differs by 1 equiv. of carbon from cinchonia, and the bark yields, when heated in a test-tube, a brown tar, not a bright red sublimate.

In a copper-colored bark from the London market, provisionally named *china cuprea*, Dr. O. Hesse found 1 per ct. of quinia, besides a little cinchonia; the same bark was already in 1857 observed by J. E. Howard and found to contain quinia. Dr. Flückiger finds the structure to be entirely different from cinchona, the bast fibres in particular having large cavities of the same or even larger diameter than the thickness of the walls of the bast cells. The bark shows Grahe's reaction (bright red colored tar, when heated).

The differences hitherto recognized between genuine and false cinchona barks is obliterated by these investigations; the two barks in

question appear to form a connecting link between the barks of cinchona and other botanically closely allied genera; while one bark reresembles in structure true cinchona without containing any cinchona alkaloid, the other bark contains two of these alkaloids but has a structure different from cinchona.

THE MOTHER PLANT OF WORMSEED.

Abstracted from a Paper by Professor Willkomm.

By Professor Flückiger.

Wormseed is exclusively brought from Central Asia, and consists of flower-buds of a species of *Artemisia*, which is now for the first time described* by Willkomm, Professor of Botany in the University of Dorpat. The plant was brought there by Professor Petzholdt, who had spent the summer and spring of the last year in Turkestan. He had the plant collected there by the people gathering wormseed near the small town of Turkestan, about 44° north lat. and 68° east long., that is to say, between the Aral Sea and the Lake Balkash; the area of the plant probably extends much more eastward. Willkomm gives a full description and diagnosis of the *Artemisia* under examination, of which we will endeavor to abstract the most important parts.

The genus *Artemisia* includes a large number of species, divided by systematic botanists into several tribes. *Seriphidium* is the name of one of these tribes; the species which belong to it are provided with hermaphrodite, homogamous florets. They are inserted on a rather stalk-like receptacle, not a disk, each floret being accompanied by a small bract. The apex of the short receptacle, however, is devoid both of florets and bracts. The small capitula or heads of the *Seriphidia* exhibit only a few florets, and are arranged so as to form paniculated spikes. The florets and the bracts, as well as the involucral scales, show numerous glands or papillæ, containing an aromatic resinoid substance. The bifurcation of the style becomes obvious only when the floret is fully developed.

The plant from which wormseed is collected is strongly shrubby, its numerous yellowish stems and branches being woody in their lower parts, and attaining a height of from 1 to 1½ feet. The branches are densely tufted; the whole plant, indeed, forms a broom, or at least

* In the *Botanische Zeitung* of H. von Mohl and A. de Bary, 1872, March 1st, p. 130.

each stem may be compared with a little broom. The pinnate leaves are thickish, of a greyish green hue, although they are beset with only a few scattered soft hairs. In the youngest state, the leaves of short shoots are densely covered with grey felted hairs. whereas the fully-developed leaves, as well as the involucres and florets, are entirely naked. This is one of the most prominent characters of the plant under notice, and, as it is well known, of commercial wormseed.

The author had not before him fully developed florets; but in these there occurs the strange fact that the style is club-shaped, much shorter than the stamina, and *enclosed in a very thin transparent membrane*, which disappears when the style begins to be separated into two stigmas. Willkomm has likewise met with a similar membrane in *Artemisia Barrelieri.*

The plant of Turkestan is very closely allied to some other *Artemisiæ*, especially to *A. Lercheana*, Stechm., *A. pauciflora*, Stechm.,—both figured in Gmelin's "Flora Sibirica," tab. 50 and 52, the former also much better in Ledebour's "Icones Floræ Rossicæ," tab. 488. Another species resembling wormseed plant is *A. monogyna*, Kit.; but all these are covered with a dense felt of whitish hairs. As to the florets of the mother plant of wormseed, Willkomm thinks they can scarcely be distinguished from those of *A. Barrelieri*, Bess., which he had observed in Spain. But in external appearance the two last-named species are widely different.

Berg, in his "Darstellung und Beschreibung der officinellen Gewächse," etc., 1863, plate xxix. c., having pointed out that the plant yielding wormseed was not known, had bestowed upon it the anticipatory name of *A. Cina.* Willkomm now maintains this name, but then Berg's name should be discarded, and the plant be termed *Artemisia Cina*, Willk. (Berg.) Its full diagnosis is as follows:—

"Suffruticosa, caudice crasso tortuoso, caulibus multis basi lignosis, 3–5 decim. longis, basi foliatis, inde a medio ramulo spermultos floriferos erectopatulos paniculam scopæformem formantes edentibus; foliis basilaribus inferioribusque longe petiolatis bipinnatisectis arachnoideo-villosulis, mediis pinnatisectis floralibusque integris glaberrimis, segmentis omnium linearibus obtusis cartilagineo-mucronulatis, crassiusculis, margine revolutis et nervo medio crasso instructis; foliis basilaribus inferioribusque turiones foliosos incano-tomentosos, superioribus foliorum fasciculos glabros ex axilla edentibus; calathiis numerosis secus ramulos laxe spicato-glomeratis vel simpliciter spicatis, sessilibus

erectis, versus anthesin 3 millim. longis oblongis, squamis glaberrimis circiter 12 oblongo-linearibus obtusissimis valde concavis laxe imbricatis, late scarioso-marginatis, dorso vitta viridi in utraque pagina densissime glanduloso-papillosa notatis; floribus 3–6 in squamarum summarum axilla sessilibus per paria dispositis, ovario obovato vix quartam corollæ obconicæ partem longitudine æquante, dentibus corollæ obtusis triangularibus tubo quadruplo brevioribus extus papillis resinosis crebris obsitis."

YAUPON.

By Henry M. Smith.

Yaupon is the name given by the Indians to the leaves of the *Ilex Cassine*, a plant indigenous to the Southern States, but found only along the coast, from Florida to North Carolina. Mixed with the leaves of other species of the same plant, *Ilex vomitoria* and *Ilex dahoon*, it formed "Cassena," the basis of their famous "black drink," which was used by the red men as a medicine, and as a state drink at some of their religious festivals.

Its constituents are, by analysis, as follows:

Volatile oil,	0.011
Wax and tar,	0.466
Resin,	3.404
Chlorophyll,	2.491
Caffein,	0.122
Tannic acid,	2.409
Brown coloring matter,	4.844
Gum, pectin, etc.,	8.244
Extractive matter,	10.149
Extractive matter, (starch, pectose, tannin, etc.)	15.277
Nitrogenous matter,	8.138
Woody matter,	34.854
Moisture,	7.595
Ash,	3.935
Total,	101.939

The volatile oil has a very agreeable odor, perhaps faintly resembling that of raw tobacco, but having also a tea-like smell. The quantity obtained was too small to determine its physical characteristics, ... it was quite soluble in water, and a very small quantity gave a

decided odor to a large volume of that fluid. The large quantity of resin is worthy of attention, as it is probably derived in large part from the oxidation of the volatile oil; and it suggests that aroma and medicinal properties of the tea might be improved by a more careful preparation of the leaves.

The amount of caffein is small, ordinary tea containing 2·5 to 6 per cent. Stenhouse found 0·13 per cent. in Paraguay tea, (*Ilex Paraguayensis*,) which agrees very closely with the amount found in Yaupon. A trace of caffein was found in the distillate, with the volatile oil, proving that this alkaloid is carried off mechanically when tea or coffee is boiled.

The percentage of tannic acid does not include that rendered insoluble by combination with legumin, etc.

The large amount of woody matter shows that the tea might be improved by more careful picking and manipulation of the leaves.

Yaupon is largely used in the South as a substitute for tea, coffee, and other stimulants; and it is reported to be very beneficial to inebriates who wish to cure themselves of their love of liquor.—*Scientific American*, 1872, *March* 30.

NOTES ON THE PROPERTIES OF THE GERANIEÆ.

By John R. Jackson, A. L. S.,

Curator of the Museums, Kew.

Geraniums, or more properly pelargoniums, are with us the most popular and best known garden plants. The order to which they belong, including the tribes *Oxalideæ* and *Balsamineæ*, number about 750 species. It is represented with us by the crane's bill (*Geranium*), the stork's bill (*Erodium*), the wood sorrel (*Oxalis*), and the balsam (*Impatiens*). It is, however, more particularly of the tribe *Geranieæ* that we have now to speak. It is widely distributed in various parts of the world, the plants often assuming very different forms from those we are accustomed to recognize as members of the tribe amongst our native or cultivated garden plants. The family is certainly not valuable, either in a medicinal or economic point of view, yet its characteristic properties are astringent and aromatic, many having a fragrant and some a musky odor. None of the British species are used in any way by us; but in North America *Geranium maculatum*, L., known as the crane's bill, crowfoot, or alum root, is considered a medicinal

plant, and is used as a powerful astringent in chronic diarrhœa, leucorrhœa, etc., and as a substitute for kino, catechu, and the more expensive remedies of a similar class. Being devoid of any unpleasant taste, it is well adapted for infants and delicate persons. The root is the part employed, and it is given either in substance or in the form of tincture, decoction or extract.

The crane's bill is described in Wood and Bache's "Dispensatory," and is used throughout the United States, not only as an officinal medicine, but also as a popular domestic remedy. For administering to children it is usually boiled in milk.

In South Africa, which is the headquarters of the genus *Pelargonium*, several of the species are used medicinally; thus *P. triste*, Ait., has a tuberous, slightly astringent root, which, when dried and pulverized, is used in diarrhœa and dysentery; and it has also been recommended as a vermifuge. These roots, in a fresh state, have been eaten by the natives as food. Another tuberous-rooted species is *P. antidysentericum*, E. et Z.; these roots are called *t'Namie* by the natives of Namaqualand, where the plants grow; they are often as large as a man's hand, and are boiled in milk and used in dysentery. Amongst other medicinal *Pelargoniæ* of the Cape may be mentioned *P. scutatum*, Sweet., called by the colonists the Kaffir sorrel. It is a shrubby plant common in many parts of the eastern districts. The leaves are said to have astringent and antiseptic properties, and to be useful in cases of sore throat, etc. From the petals of the flowers a juice of a blue color can be expressed, which Burchell, the celebrated South African traveller, suggested might be found useful for painting. *P. cucullatum*, Ait., is also a shrubby plant, very common on the side of Table Mountain: "It has been recommended in the form of decoction, or as an enema in colic, nephritis, and suppression of urine, and is also an excellent emollient." It is said that this plant was formerly exported to Holland as *Herba Althææ*. *P. anceps*, Ait., is an herbaceous plant, with small crimson flowers; it is called *Roode Rabassam* by the natives, who use it for promoting parturition and to procure abortion.

P. roseum, likewise a Cape species, is valuable on account of its yielding an essential oil much used in perfumery. This plant is very extensively cultivated in the south of France and by the rose growers in Turkey. The oil is obtained from the leaves of the plant, one hundredweight of the latter yielding by distillation about two ounces

of essential oil; it has a smell very similar to otto of rose, and is much used for adulterating that valuable article; it is, moreover, said to be frequently adulterated itself with the oil of *Andropogon*, which is considerably cheaper, and is imported in large quantities from the East.

Next to the genus *Pelargonium*, the most interesting, perhaps, with regard to its products is *Monsonia* or *Sarcocaulon*. The plants have mostly fleshy spiny stems, which secrete or deposit a large quantity of a waxy or resinous substance; *S. L'Heritieri* and *S. Patersoni* are, perhaps, more highly endowed with this power than any other species. This substance seems to be formed in the bark, and in such large quantities, that the stems become, to all appearance, a mere mass of wax, moulded to the form and shape of the stem. It is of a greenish-yellow color externally, in fracture very like that of gamboge but rather more transparent; it burns like caoutchouc, but with a slightly aromatic smell. In alcohol it becomes softish and partially plastic, and a similar effect is produced upon it by boiling water. It breaks with a short fracture, like a resin, so that it seems to possess a combination of waxy, resinous and elastic properties. As the stems of the plants become old the vegetable tissues seem to be displaced by the formation of this substance, so that becoming a mass of inflammable matter, they are used by the natives for candles or torches. Some fine specimens of this substance are in the Kew collection. The root and herb of *Monsonia ovata*, Cav., called by the Hottentots *Keita*, are astringent, and are used by them in dysentery.—*Pharm. Jour. and Trans., March* 16, 1872.

THE EUCALYPTUS GLOBULUS AND ITS USE IN MEDICINE.

The employment of the *Eucalyptus globulus* in therapeutics is the subject of a very important memoir by Professor Gubler, in which he expresses an opinion that it will probably prove to be a remedy worthy of being ranked with the cinchona alkaloids. We take the following particulars from the *Journal de Pharmacie et de Chimie* for December:

The *Eucalyptus globulus* belongs to the Natural Order *Myrtaceæ*, which furnishes the clove (*Caryophyllus aromaticus*), oil of cajeput (*Melaleuca minor*), and the pimento (*Eugenia Pimenta*). It is one of the noblest representatives of a genus that contains upwards of a hundred species. It is often gigantic in size, and is impregnated

throughout with an aromatic substance, which is present, however, in smaller proportions in the wood and the bark than in the flowers and the leaves. The tree is easily acclimatized in the southern provinces of France, Corsica, Algiers and Spain, being known in the last-named country under the popular name of the fever tree.

An essential oil, having the formula $C_{12}H_{40}O$, is obtained from the leaves by distillation, which has been named by Cloetz, who investigated its composition, eucalyptol. The results of this investigation have already been printed in this Journal.* Eucalyptol has an agreeable, fragrant, aromatic and peculiar odor, which by some has been compared to camphor, by others to rose or lavender. It has an aromatic, warm and bitter flavor, accompanied by a slight acidity and freshness at the back of the throat; when in excess, however, it produces a burning sensation, and an increased secretion of saliva. Doses of from two to four grams and upwards cause a disturbance of the digestion, sometimes succeeded by a diarrhœa in which the motions, like the eructations, recall the smell of the eucalyptus. Large doses sometimes cause headache, excitement and fever, with accelerated respiration, thirst, sickness and generally sleepiness; upon anæmic persons, however, it acts as a narcotic. The symptoms rarely last more than a few hours. In most cases one to two grams can be tolerated at first, and in all cases the patient easily becomes habituated to its use. The physiological action of the leaves is very similar, and it has been found that they can be taken by fresh patients in larger doses than the free essence.

In Australia the *Eucalyptus globulus* is the popular remedy for fevers, and in Europe it has been used successfully in the treatment of diseases prevalent in marshy districts. M. Gubler quotes the testimony of several medical practitioners, who say that it produces marvellous results in cases of intermittent fevers, especially obstinate ones where sulphate of quinine has been used without effect. He also points out that in marshy districts near to eucalyptus forests intermittent fevers are unknown—a result that he attributes either to the neutralization of the effluvia by the aromatic emanations from the trees, or else to the sweetening of the stagnant waters by the leaves and pieces of bark that fall into them, such waters, according to travellers, being perfectly potable. Efforts are therefore being made to

* Pharm. Jour. 3d Ser. Vol. I. p. 78.

increase the number of eucalyptus plantations in the marshy and insalubrious districts of Corsica and Algeria.

The tincture, infusion and decoction of eucalyptus are used for disinfecting the dressings of wounds. M. Mares has employed fresh young leaves as a local stimulant to small wounds slow to cicatrize. Dilute essence, infusion and distilled water of the leaves are used as astringents and hæmostatics. The preparations are also used with success in purulent catarrhal affections of the urethra and vagina. The leaves, when masticated, perfume the breath, and harden spongy and bleeding gums.

The presence of the essence of eucalyptus retards in a remarkable manner the development of cryptogams. According to M. Gubler, solution of salts of strychnia, atropia, morphia and aconitia, prepared for hypodermic injection with the distilled water of the leaves, remained clear for many weeks; while others, prepared at the same time with pure water, became turbid with confervoid growths in a few days.

The following are the pharmaceutical preparations of eucalyptus that have been found convenient in use:—

1. The *powdered leaves*, which is the best form, and is prescribed in doses of four, eight, twelve and even sixteen grams a day.

2. The *infusion* and *decoction*, which M. Gubler recommends should not be submitted to too much heat, in order not to drive off the essence.

3. The *distilled water* of the leaves, an agreeable vehicle for stimulants.

4. An *aqueous maceration of eucalyptol*, with the same properties.

5. The *aqueous extract*, recommended by M. Carlotti to prevent the return of intermittent fever.

6. The *alcoholic extract*, *tincture* and *alcoholate*.

8. *Eucalyptol*, which is administered either in pills or in capsules.

8. *Inhalations* of eucalyptol.—*Pharm. Jour. and Trans.*, *March* 2, 1872.

MRS. WINSLOW'S SOOTHING SYRUP—A POISON.

By W. F. McNutt, M. D., San Francisco.

My attention was first called to the baneful effects and the enormous consumption of this nostrum, by an article in the November, '69, number of the *California Medical Gazette*, by Dr. Murray, U. S. A.

Dr. Murray had been called to see a child aged six months, apparently in a dying condition from the effects of some narcotic poison. He found that this Soothing Syrup was the only medicine which had been administered, and of it the child had taken two teaspoonfuls within ten hours. There was remaining in the vial from which the two teaspoonfuls had been taken, ten drachms, which yielded, on analysis by a skillful chemist, nearly one grain of morphia and other opium alkaloids to the ounce of syrup. "The specimen of Soothing Syrup analyzed was made by Curtis & Perkins, of New York, who are the only manufacturers."

On the 7th of February, Mrs. W. came into my office with a child five months old in her arms, which, she said, was very sick; that it slept constantly, and would not nurse or move for several days. The child was breathing heavily and its pupils were closely contracted. I asked if the child had been taking opium; she replied that it had taken nothing but soothing syrup. She said that on the 5th, two days before, the child was restless and its bowels costive, and that a neighbor had advised her to give it a teaspoonful of soothing syrup, saying it was excellent to regulate the bowels. (She had previously given the syrup in small doses.) She administered the syrup twice during the day, a teaspoonful each time; the child slept heavily all night, and would not nurse when roused. Not suspecting the syrup had anything to do with its sleeping, she gave on the 6th, at different times, three teaspoonfuls more. The child refused to nurse when roused. On the 7th she gave it another teaspoonful, before bringing it to my office. I told her that the child was poisoned by morphia, of which soothing syrup contained a large quantity. The mother was surprised and alarmed, and had had no idea that there was morphia in soothing syrup.

I ordered brandy and coffee, the bowels to be kept open by injections, and the child to be kept awake as much as possible. The child recovered, but was not able to nurse until the 10th. This is but one of the many instances of poison by this nostrum.

Dr. R. S. Maxwell, my partner, was called to see a child five weeks old, to whom half a teaspoonful of soothing syrup had been given a few hours previous. The child was already past all help, and died in a few hours. No other medicine had been given.

In my own case, the child five months old had taken two teaspoonfuls on the 5th, three on the 6th, and one on the 7th, making six tea-

spoonfuls from ten o'clock on the 5th until 8 A. M. on the 7th; consequently it got over half a grain of morphia in the space of forty-six hours. As susceptible as children are to the influence of opium, it seems almost impossible that the child could have lived. In fact, we know that it could not have lived, had not the tolerance of the poison been induced by previous doses in lesser quantities. We may add that there are very few children at the age of six months, who would not be poisoned to death, were they to take the syrup as directed, (namely: six months old and upwards, one teaspoonful three or four times a day until free from pain,) unless a tolerance of the drug be induced by its previous administration in small doses. The morphia in a teaspoonful of soothing syrup is equal to about twenty drops of laudanum. Here we have thousands of mothers and nurses, ignorant alike of the ingredients and the effects of this deadly nostrum, directed to give a child six months old morphia equal to twenty drops of laudanum, while a physician would not dare to give a child of that age more than three drops.

Dr. Murray, in the article already referred to, says: "I have ascertained that there are about one hundred thousand two-ounce bottles of it sold annually in this city, containing about one hundred and eighty thousand grains of morphia, which are given annually to the babies of this State."

If the babies of this State consume two hundred thousand ounces of soothing syrup, it is but fair to assume that there is seventy-five times that amount used in the whole United States, which would make 15,000,000 ounces of syrup, or about 14,000,000 grains of morphia. Setting aside the direct cost of this nostrum, it would be scarcely possible to estimate the damages which the people of the United States sustain indirectly from its use.

How much the early resort of our youth to tobacco and alcoholic stimulants is due to the previous use of the opium contained in this nostrum is probably not realized. But, that it has much to do with it, any one can believe, who has seen with what avidity the opium eater, when deprived of his opium, will fly to alcohol, ether, hashish, tobacco, or anything that will lull the eternal craving of the appetite for something, other than wholesome food. It would be also impossible to estimate the number of children it sends to the grave before they reach their second year. But that the administration of 14,000,000 grains of morphia annually to the babies of the United

States, by persons ignorant of its effects, must send its thousands, any reasonable person will be inclined to grant. But a still graver question presents itself, namely: How much of the physical disease, of the drunkenness, of the degradation and of the vice, and how many of the weakened intellects, are due to the use of the soothing syrup in infancy? Probably enough to make it a wiser Legislature that will prohibit the manufacture of any nostrum for children which contains opium, than the Legislature that passes a prohibitory liquor law for the benefit of its adults.—*Pacific Med. and Surg. Journ* 1872, Apr.

Varieties.

The Pharmacopœia of 1870.—In anticipation of the approach of another course of instruction in the Colleges of Pharmacy and of Medicine it is exceedingly desirable that we should have the revised Pharmacopœia. There will probably be ten schools of pharmacy in operation next winter, to say nothing of the still more numerous medical colleges, in every one of which the instructions in chemistry, materia medica and pharmacy are largely influenced by the national standard. Now, when it is remembered that the hundreds of young men who will complete their college course next spring will all have to unlearn some portion of their instructions, and will, in fact, almost from the time of their issuing from the colleges, be behind the times in regard to some of the officinal processes, the corrected nomenclature, and other things which enter into the decennial revision, we think no one can fail to recognise the impertance of the work being put into print. It is well known that the labors of the Committee have been so far completed that the revised work is already engrossed for the printer, and, with great respect and deference to the Committee who have spent so much labor upon it, I will close with the inquiry, which is heard from all quarters: When will the Pharmacopœia be issued?

EDWARD PARRISH.

Dextrin.—The *Polytechnisches Journal* recommends the preparation of dextrin by mixing 500 parts potato starch, 1500 parts cold distilled water, and 8 parts pure oxalic acid in a vessel on a water-bath, and heating till the mixture does not show the starch reaction when tested with iodine. When this point is reached the vessel is removed from the water-bath, and the liquid neutralized with pure carbonate of lime. Having stood for two days, the liquid should be filtered, and the filtrate evaporated on a water-bath till it becomes of a pasty consistency. It can then be removed with a knife and dried into a cake in a warm place. Two hundred and twenty parts of pure dextrin are thus obtained. —*Scientific American, April* 20, 1872.

Ether Glue.—An excellent liquid glue is made by dissolving glue in nitric ether. The ether will only dissolve a certain amount of glue, consequently the solution cannot be made too thick. The glue thus made is about the consistency of molasses, and is doubly as tenacious as that made with hot water If a few bits of India rubber, cut into scraps the size of buckshot, be added, and the solution be allowed to stand a few days, being stirred frequently, it will be all the better, and will resist the dampness twice as well as glue made with water.—*Ibid.*

Silvering of Glass—Dr. Bothe.—This lengthy paper contains several hints and practical receipts for the purpose of silvering glass, from which we quote the following particulars: Ingredients and apparatus required—Sal-Seignette (tartrate of potassa and soda), solution of that salt in water, 1 grm. to 50 of water; of ammonia liquida, 50 c.c.; solution of nitrate of silver, 1·8; glass flask of 1000 c.c. cubic capacity for the reduction fluid, and a little flask for the silvering fluid. Reduction fluid—Mix with 900 c.c. of pure distilled water 90 c.c. of the above-mentioned solution of the Seignette salt; pour this liquid into the glass flask, and let it boil violently; while thus boiling add 20 c.c. of the solution of nitrate of silver, and continue the boiling for some ten minutes longer; this fluid, which now contains oxytartrate of oxide of silver, can be kept for any length of time, and improves on keeping; if left in the flask, which for convenience should be labelled (1), the liquid has to be filtered before use through filtering paper. The silvering fluid is made in the following manner: Nitrate of silver is first dissolved in distilled water, and next ammonia added until the precipitate at first appearing is again dissolved; the liquid is again filtered, and diluted with so much water that 1 grm. of the silver salt makes 100 c.c. of solution. For the purpose of silvering, equal quantities by bulk of the fluids alluded to are first each separately filtered, and next poured together into a vessel of suitable size and shape, wherein the glass plate to be silvered is then placed; this glass should be first scrupulously cleaned.—*Chem. News, Lond., March* 15, 1872, from *Bay. Ind. und Gew. Blatt.*

AN ACT

To Regulate the Practice of Pharmacy and Sale of Poisons and to Prevent Adulterations in Drugs and Medicinal Preparations in the City of Philadelphia.

Whereas The safety of the Public is endangered by want of care in the sale of Poisons whether to be used as such for legitimate purposes or employed as medicines and dispensed on the prescriptions of Physicians; *and whereas* The power of Physicians to overcome disease depends greatly on their ability to obtain good and unadulterated Drugs and skilfully prepared Medicines; *and whereas* The class of persons to which the preparation and sale of Drugs Medicines and Poisons properly belong known as Apothecaries Chemists and Druggists or Pharmacists should possess a practical knowledge of the business and science of Pharmacy in all its relations; therefore

Section I. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and it is hereby enacted by the Authority of the same* That hereafter no person whatsoever shall open or carry on in the City of Philadelphia any Retail Drug or Chemical Store as the proprietor or manager thereof nor engage in the business of compounding or dispensing Medicines on prescriptions of Physicians or of selling at retail any Drugs Chemicals Poisons or Medicines without having obtained a written certificate that he is duly competent and qualified to do so from "The Pharmaceutical Examining Board" and having been duly registered as hereinafter provided.

Section II. That there shall be established in the City of Philadelphia a Board to be styled The Pharmaceutical Examining Board to consist of five persons three of whom shall constitute a quorum who shall be appointed by the Mayor of the City of Philadelphia out of the most skilled and competent Pharmacists [at the time engaged in said business] in the said City who shall be and constitute the said The Pharmaceutical Examining Board as aforesaid. The said persons shall hold their office for three years and until their successors are duly appointed and qualified. They and each of them shall within ten days after their appointment take and subscribe an oath or affirmation before the Clerk of the Court of Quarter Sessions of the Peace for the County of Philadelphia that they will faithfully and impartially perform the duties of their office; and any vacancy occurring in said Board shall be filled for the unexpired term by the Mayor of the said City.

Section III. That the said The Pharmaceutical Examining Board shall keep a Book of Registration open at some convenient place of which due notice shall be given by advertisement in at least two of the public newspapers of the City of Philadelphia in which Book shall be registered the name and address of every person duly qualified under this Act to conduct the retail Apothecary business. And it shall be the duty of all persons now conducting or who shall hereafter conduct the business of retail Apothecaries in said City to appear before said Board and be registered within thirty days after such notice.

Section IV. The said Pharmaceutical Examining Board shall be entitled to demand and receive from each applicant for such registration and the certificate hereinafter provided for a fee not to exceed five dollars ($5) to be applied to the payment of expenses arising under the provisions of this Act.

Section V. The duty of the said The Pharmaceutical Examining Board shall be to examine every person who shall desire to carry on the business of a retail Apothecary or that of retailing Drugs Chemicals or Poisons or of compounding and dispensing Physicians' prescriptions touching his competency and qualification for that purpose; and upon the said Board or a majority of them being satisfied of such competency and qualification they the said Board or a majority of them shall grant to such person a certificate of his competency and qualification which certificate shall entitle the holder thereof to conduct and carry on the business as aforesaid.

Section VI. That if any person should hereafter engage in the business of an Apothecary or of retailing Drugs Chemicals and Poisons or of compounding and dispensing the prescriptions of Physicians either directly or indirectly without having obtained such certificate as aforesaid such person shall be liable to a penalty of one hundred dollars ($100) for each and every week during which they shall continue to carry on such business without such certificate as aforesaid to be recovered by a suit to be brought before any Alderman or in any competent court in said city by the said Board or by any other person for the use of the Guardians of the Poor for the City of Philadelphia to whom the said penalties are to be paid.

Section VII. That the foregoing provisions of this Act shall not apply to or affect any person who shall have a diploma or certificate from any incorporated College or School of Pharmacy whose diploma or certificate is based upon a regular term of service in the Drug and Apothecary Business or who shall be engaged in the Drug and Apothecary Business prior to the passage of this Act except only in so far as relates to registration as provided for in Sections III and VI, of this Act.

Section VIII. That no person not a Graduate in Pharmacy shall be allowed by the proprietor or manager of any store to compound or dispense the prescriptions of Physicians [except as an aid under the immediate supervision of said proprietor or his qualified assistant] unless he has been at least two years apprenticed in a store where medicines are compounded and dispensed and has attended one full course of lectures on Chemistry Materia Medica and Pharmacy; and no proprietor shall leave his store in charge of any but a qualified assistant. Any person violating the provisions of this Section of this Act shall be deemed guilty of misdemeanor and on conviction thereof be liable to a penalty not exceeding one hundred dollars ($100).

Section IX. A qualified assistant in the meaning of this Act shall be either a Graduate in Pharmacy holding a diploma or certificate of competency based upon a regular term of service to the Drug and Apothecary Business from an incorporated College or School of Pharmacy or a person holding a certificate of competency and qualification from The Pharmaceutical Examining Board appointed under this Act.

Section X. That any person who shall knowingly wilfully or fraudulently falsify or adulterate or cause to be falsified or adulterated any drug or medicinal substance or any preparation authorized or recognized by the Pharmacopœia of the United States or used or intended to be used in medical practice or shall mix or cause to be mixed with any such drug or medicinal substance any foreign or inert substance whatsoever for the purpose of destroying or weakening its medicinal power or effect and shall wilfully knowingly or fraudulently sell or cause the same to be sold for medicinal purposes shall be guilty of a misdemeanor and upon conviction thereof shall pay a penalty not exceeding five hundred dollars ($500) and shall forfeit to the Commonwealth all of the articles so adulterated.

Section XI. Nothing contained in this Act shall apply to or in any manner whatever interfere with the business of any practitioner of Medicine who does not keep open shop for the retailing dispensing or compounding of Medicines and Poisons nor prevent him from administering or supplying to his patients such articles as may seem to him fit and proper nor shall it interfere with the making and dealing in proprietary remedies [popularly called Patent Medicines].

Approved April 4th, 1872.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The Spring course on Botany, which commenced on April 3d, is better attended than in previous years, the number of students being about 30. Every week one lecture is delivered, and an excursion is made weekly to a convenient place in the neighborhood of Philadelphia for the collection of plants. Permission has again been granted to Professor Maisch and the botanical class to botanize in Fairmount Park.

Chicago College of Pharmacy.—At the meeting held March 6th, the retiring President, Mr. E. H. Sargent, in his annual address, spoke feelingly of the sympathy extended by the pharmacists of this country and Europe to this College after the disastrous conflagration. Resolutions of thanks to all contributors were adopted.

The following officers were elected: George Buck, President; Th. H. Patterson, J. W. Mill, Vice-Presidents; G. M. Hambright, Secretary; A. C. Vanderburgh, Treasurer; A. E. Ebert, Corresponding Secretary; W. F. Blocki, Henry Biroth, N. Gray Bartlett, E. H. Sargent, J. C. Borcherdt, J. M. Hirsh, J. H. Mead, Thos. Whitfield, Jul. H. Wilson, Thos. N. Jamieson, Trustees.

The Cincinnati College of Pharmacy closed its lectures about the middle of April. The course, we are informed, has been quite successful.

A meeting of the College was held March 19th, at which numerous specimens were presented to the cabinet, and exhibited to the College by Professor Wayne in an interesting lecture. A unanimous vote of thanks was tendered to the donors, Messrs. Powers & Weightman, Browning & Bros., and Prof. Wayne.

The report of the Committee on Certificates of Membership was received, and the Committee discharged. The Committees on Pharmacy Bill and on Bill for the Establishment of Colleges of Pharmacy were merged into a joint committee, with power to act in the whole matter.

Louisville College of Pharmacy.—The first session in this institution came to a close on March 29th, the class numbering 26 students.

California Pharmaceutical Society.—The regular monthly meeting was held on Wednesday evening, March 13th, Mr. Calvert, in the absence of the President, in the chair. After the usual routine of business and the election of new members the Committee on the New Constitution and By-Laws reported

that the printed constitution, with list of members, was still in the hands of the printer, awaiting the final passage of the new drug law, now before the Legislature, relating to the City and County of San Francisco, with the view of incorporating the same into the pamphlet.

The new drug bill was then brought up for discussion, when, after considerable debate on some minor points which were considered now irremediable, the proposed bill was accepted and endorsed by the Society.

The following resolution was adopted:

Resolved, That the thanks of this Association be tendered to Messrs. Malinkrodt & Co., of St. Louis, for the donation of a box of chemicals received by the Society.

The Corresponding Secretary read, among other correspondence, extracts from a letter from Prof. J. M. Maisch, requesting botanical specimens indigenous to this coast, either on a basis of exchange or pecuniary remuneration, when, on motion, the matter was referred to the Board of Directors.

The above-mentioned drug law having since passed the Legislature and received the signature of the Governor, we give in the following a general synopsis of the Act, which provides that after the 1st of June, 1872, it shall be unlawful for any one unless a registered pharmaceutist or assistant pharmaceutist, to open or conduct any pharmacy or store for retailing, dispensing or compounding medicines or poisons. The persons to be registered are divided into four classes: graduates, licentiates, practicing and assistant practicing pharmaceutists—the status of each being clearly defined. The members of the California Pharmaceutical Society residing in San Francisco shall, during the month of May, and annually thereafter, elect five of the most prominent pharmaceutists of San Francisco to serve as a Board of Pharmacy. The duties and powers of this board are defined in detail by the remainder of the bill, also the regulating of the sale of poisons and adulterated drugs. In the main, the bill is analogous to the new proposed act drafted by the Conference Committee of the College of Pharmacy and Pharmaceutical Societies of the City of New York, and made conformable to the wants of the pharmaceutists of San Francisco. An important feature of this Act is the exemption of all pharmaceutists from jury duty.

Wm. T. Wenzell, *Cor. Sec.*

A Meeting of the Pharmacists and Druggists of Cleveland was held on Thursday, April 18th, at the store of Strong & Armstrong; the following committees were appointed to make arrangements for the twentieth annual meeting of the American Pharmaceutical Association, to be held in Cleveland in September next:

Committee on Ways and Means.—E. M. Hessler, F. H. Hubbard, S. P. Churchill, L. Smithnight, J. J. Vogt, A. C. Armstrong, L. J. Merkel, W. H. Hartness, P. I. Spenzer, J. P. Moore, W. J. Ranny, George Ashcraft, T. Theo. Mueller, A. J. Townsend.

Committee of Arrangements.—C. S. Mackenzie, H. C. Gaylord, S. M. Strong, D. Meyers, L. J. Merkel, Bruce Huling, C. P. Vaupel.

Committee on Halls.—H. C. Gaylord, Marshall Shay, A. Mayell, H. C. Bush, G. W. Clarke, J. F. Baier.

Committee on Exhibitions.—L. J. Merkel, H. C. Gaylord, A. Mayell, H Hensch, J. P. Moore, Z. P. Casterline.

Committee on Hotels and Railroads.—A. C. Armstrong, C. C. Canfield, A. W. Bock, C. F. Fenton, A. Mayell, S. P. Churchill.

Committee on Reception.—S. M. Strong, J. J. Vogt, C. S. Mackenzie, C. P. Vaupel, G. W. Clark, Horace Benton, J. D. Keegan, Z. P. Casterline, E. M. Hessler, J. Townsend.

Committee on Entertainment.—C. C. Canfield, C. S. Mackenzie, E. M. Hessler, A. C. Armstrong, Bruce Huling, W. H. Hartness, W. J. Field, W. H. Capner.

The next meeting will be held at the store of Benton, Myers & Canfield, on Tuesday evening, April 30th.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the pharmaceutical meeting held March 6th, Mr. A. F. Haselden in the chair, a number of interesting specimens were presented to the museum, among others true Winter's bark, chrysophanic acid, methyl-strychnia, xylol, croton chloral-hydrate and three sponges *in situ*. Dr. Dyce Duckworth read a paper on the pharmacy of ipecacuanha, in which it is stated that the deposit in the officinal wine contains acid tartrate of potassa and cephaelate of emetia, and that the addition of 3 or 4 minims of liquor potassæ renders the muddiest wine or tincture bright and clear and of the color of old port wine; the author proposes in their stead an acetum containing 1 oz. of ipecac and of acetic acid in the pint; also an oxymel, made by Mr. Carteighe by macerating 1 oz. of ipecacuanha with the same quantity of acetic acid for 24 hours, then displacing with water 10 fluidounces and mixing with 2 lbs. clarified honey. A very interesting discussion followed on the assaying and composition of ipecacuanha and on medicated wines.

A note on *Cinchona caloptera*,* by Dr. J. E. De Vrij, was then read, from which it appears that this species was supposed to be *Cinch. succirubra* shortly after the introduction of the cinchonas into Java; as early as 1860 Mr. J. E. Howard doubted its identity with the latter species, and Dr. Miquel finally recognized it as a new one, and described it as *Cinch. caloptera* in Annales Musei Botanici Lugduno-Batavi. In 1868 Dr. De Vrij analyzed it, and found only 0·55 per ct. of alkaloids, mostly cinchonia; an older bark, examined since by Moens, yielded 0·63 quinia and 2·8 cinchonia.

Meeting of April 3.—Mr. C. H. Wood read a paper on the metrical system of weights and measures into the Pharmacopœia, in which the author advocates to designate the quantities of the ingredients in the various formulas, not only by the present weights and measures, but likewise by proportional numbers (parts and fluid parts). The plan was not favorably received by Messrs. Hazelden and Carteighe, who expressed themselves opposed to such a transitional change, and would rather prefer the adoption of the metrical system, but thought that the time had not arrived for this final change. Similar views were held by Mr. Martindale; if the metrical system were introduced, he hoped it would be done without the weighing of liquids. Professor Redwood contended

*See American Journal of Pharmacy, 1872, p. 172.

the plan proposed by him,* to use in all formulas only the terms parts and measures, was the simpler one, equally applicable to the weights and measures now in use and to the metrical system, so that no further change would be necessary. Mr. Williams adopted the same views. Mr. Wood replied at considerable length, after which Mr. Edward Hested read a paper on the occurrence of copper in cajeput oil; six samples examined by him contained copper; by redistillation a colorless oil was obtained, which, in contact with copper, dissolved that metal and turned green.

Pharmaceutical Society of Paris.—At the session held Dec. 6th, 1871, Mr. Lefort in the chair, Mr. Grassi was elected Vice-President and Mr. Bourgoin Annual Secretary for 1872. An interesting discussion took place on the Norwegian pot for cooking victuals at a temperature below 100° C. Mr. Baudrimont communicated an analysis made of an East Indian cinchona bark (*Cinch. succirubra*), which yielded 37½ per cent. of extract and 5·45 per ct. of sulphates of the alkaloids, one per cent. being the quinia salt, the remainder quinidia and cinchonia sulphate. Mr. Marais ascribed the large yield of extract to the bark being young. Mr. Planchon presented to the Society wax from *Ceroxylon andicola*, of New Grenada, and a root of *Psychotria emetica*, and made some remarks about different ipecacuanhas. Mr. Méhu read a paper on the preparation of indigotin.† Mr. Soubeiran exhibited compressed and desiccated bread prepared by Mouries. The same gentleman referred to the loss of the Chicago College of Pharmacy, sustained by the great fire, and asked for contributions towards reforming its collections. Mr. Guichard read a paper on soluble oxide of iron, which is obtained by precipitating in the presence of sugar, sequichloride of iron with an excess of caustic soda, the soluble compound containing soda, ferric oxide and sugar; glycerin and mannite yield similar compounds.

At the meeting of January 8th, Mr. Stan. Martin presiding, Mr. Baudrimont spoke about his researches on sulpho-chloroform. The reaction between chloroform and sulphide of sodium is complicated and does not yield any satisfactory results. On acting with the same sulphide upon a cold aqueous or alcoholic solution of chloral, the liquid becomes hot and of a beautiful red color. The aqueous solution soon becomes turbid, and deposits an abundant yellow precipitate. Similar results are obtained with an alcoholic solution, which, however, assumes such an intense coloration that by this reaction chloral may be detected in a liquid containing only $\frac{1}{400}$. This compound stains the hands and paper, and the coloration is pretty persistent, although it changes even in the dark.

The February session was held on the 7th, Mr. Martin in the chair. Mr. Bussy read a note by Mr. Carles on the efflorescence upon vanilla, to which he ascribes acid properties and the formula $C_{16}H_3O_4$;‡ the iodine substitution compounds crystallize well.

Mr. Roucher's essay was presented, entitled Reflections on the Relations be-

* See American Journal of Pharmacy, 1872, p. 87.

† See Amer. Journ. Pharm., 1872, p. 71.

‡ See Gobley's investigations on *Vanillin*, in Amer. Journ. Pharm., 1859, p. 130.—Stokeby's formula for vanillic acid is $C_{34}H_{22}O_{21}$.

tween Military Physicians and Pharmacists. It stated that Mr. Poggiale's efforts had succeeded in making the grades alike, and maintaining the equality of the two branches; but lately attempts had been made, not only to subordinate pharmacy to medicine, but even to suppress the pharmaceutic service in the army. Mr. Poggiale, for himself and the military pharmacists, thanked Mr. Boudet, who had read the essay and commented upon it approvingly.

Mr. Bussy reported on the transactions of the Académié des Sciences, and gave an account of the precautions adopted by Dupuy de Lôme, resulting to a certain degree in steering balloons; also on the debates on fermentation.

Mr. Buignet related the interesting researches on crystallized digitalin, in competition for the Orfila prize.

Mr. Roucher read a long paper on distinguishing between the fibres constituting vegetable tissues by means of the microscope, sulphuric acid and iodine.

Mr. Marais stated that towards the end of 1871, the thermometer having fallen to —22° C., and the stem of *Cerasus laurocerasus* being frozen, a singular alteration was observed in its leaves, proceeding from the petiole towards the margin, rarely from the border towards the centre. Immediately after this period of cold, the leaves would still yield volatile products, but no hydrocyanic acid. It would be interesting to ascertain whether the emulsin alone had been altered, for which purpose Messrs. Bourgoin and Gobley suggested to treat the bruised leaves with emulsion of sweet almonds.

Mr. Vuaflard has prepared a tincture of cundurango, the efficacy of which in cancerous affections he considers exceedingly doubtful.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held April 16th, 1872, President in the chair.

The minutes of last meeting were read and approved.

Prof. Maisch presented the report of the Smithsonian Institution for 1870. The Professor also read a paper styled "Pharmacognostical Notes," which was referred for publication. Some remarks were made upon the use of Inula for hydrophobia—some assert its positive cure.

Samples of an herb were exhibited by Prof. Parrish, which is sold under the name of "wild tea," and used in cancerous affections. It does not appear to be the New Jersey tea *Ceanothus Americana.* It was referred to Prof. Maisch for examination.

Prof. Parrish exhibited a model in plaster, handsomely gilded, of the celebrated gold nugget, "The Welcome," weighing 2166 oz., value £8376, 10s., 10d. The original of this model is in the Kensington Museum, of London.

Prof. Parrish exhibited a sample of coated pills, sent from England, very handsome, but, as compared with sugar coated pills, not so soluble.

Prof. Maisch read a paper on benzine as a solvent for Oleoresins compared with ether, which was referred for publication. Mr. Bullock remarked that some oleoresins were nearly insoluble in benzine.

Prof. Maisch detailed the result of his experiments on Monobromated Cam-

phor, which he has secceeded in preparing without using hermetically sealed vessels, and thus doing away with the danger of explosions; a considerable quantity of hydrobromic acid is likewise obtained by this process, which, by the old method, was mostly lost. The experiments not being completed yet, the results will be communicated in detail at a subsequent meeting.

Mr. Boring exhibited a sample of purified suet, which was very handsome. It was made by treating the melted fat with table salt and alum, and after congelation, washing out the salts by large quantities of water; the remelted fat is then benzoinated. Prof. Maisch stated that this was essentially the process employed by perfumers in purifying their fats for pomade.

The meeting then adjourned.

Clemmons Parrish, *Registrar.*

Editorial Department.

Two Pharmaceutical Schools in One City.—We cheerfully insert the subjoined letter correcting an error into which we had been unwittingly led, because we have never seen the charter of Georgetown College, and because we have heard frequently of this Institution as a medical college, but, to the best of our remembrance, never as an university.

"Washington, D. C., April 8th, 1872.

Editor American Journal of Pharmacy:

"Dear Sir.—Permit me to present to your attention the *facts* in the matter of conferring degrees in the School of Pharmacy of Georgetown College.

"The School of Pharmacy is only a part of the Medical Department, inasmuch as two Professors of the latter (viz., Materia Medica and Chemistry), are acting with one Professor of Pharmacy, and constitute the school. The degrees are *not* conferred by the Medical Department of Georgetown College, but by the mother institution through its School of Pharmacy. The Diplomas are signed by the President of Georgetown College, and have the corporate seal of the President and Directors of Georgetown College attached.

"A reference to a law of the Congress of the United States, passed in March, 1815, will show that Georgetown College is an *University*, clothed with all the powers and privileges of such institutions, and therefore it has the *right* to confer degrees in *all* the arts and sciences.

"I hope, sir, you will do us the justice to correct your error in the next issue of the *Journal of Pharmacy.* With respect, I remain, yours,

D. P. Hickling,

Professor of Pharmacy, Georgetown College."

It will be seen from this letter that our National Capital has set an example which, we trust, will not be followed by any other city, namely, to have two pharmaceutical schools in one locality. We are earnestly advocating the proper education of the pharmacist, and are in favor of the multiplication of Colleges of Pharmacy, but not to an indefinite number, which would be fraught with results similar to those which the medical profession throughout the country is endeavoring to correct. Favoring, as we do, the education of pharmacists by pharmacists, it is not too much to hope that, if the necessity for a College of Phar-

macy in the District of Columbia is felt, the pharmacists there may profit by the experience of their brethren in other cities, and after they shall have established a College, that both the Georgetown and the Columbian College may follow the example of the University of Pennsylvania (see page 191 of our last number), which has been imitated, we believe, by all the medical colleges in those cities where Colleges of Pharmacy have thus far been established.

The Philadelphia Pharmacy Bill has been passed by both Houses of the Legislature and become a law through the signature of the Governor; a copy of it will be found upon another page, and enable the reader to judge of its merits. In several respects we regard it as the best pharmaceutical law which has yet been passed in the United States, inferior only to the one which the Governor vetoed on February 19th (see page 136 of March number). We firmly adhere to the doctrine that the members of a profession are better able to regulate their professional affairs than others not connected with it, and we therefore regret that it was deemed advisable, under existing circumstances, to change Section II, as originally proposed, so as to take away from the College of Pharmacy the duty to nominate candidates for the Examining Board, and vest the power to make the selection in the Mayor of the city alone, who can hardly be expected to know the *most skilled and competent pharmacists of the city*, from whom he is to make the appointment.

However, Mayor Stokley appears to be impressed with the responsibility placed upon him by this law, and by a letter to the President of the College, requested that its Board of Trustees should nominate ten persons suitable, as the law requires, for this position. The Board, after long and patient consultation, has performed this task, and communicated the nominations to the appointing officer.

The Appointment of the Pharmaceutical Examining Board of Philadelphia has been made by Mayor Stokley from the nominations by the Board of Trustees of the Philadelphia College of Pharmacy, and must prove eminently satisfactory, because party politics did not enter into consideration. The gentlemen appointed were selected with regard to their fitness for the responsible position, and are well known and highly esteemed here. We heartily congratulate the Mayor on his excellent choice. The following is an exact copy of the official letter:

[seal.] Mayor's Office of the City of Philadelphia,
April 24th, 1872.

Dillwyn Parrish, Esq.:

Dear Sir,—His Honor the Mayor directs me to write you that the following-named gentlemen have been selected by him as the Pharmaceutical Examining Board for the City of Philadelphia, viz.: James N. Marks, Charles L. Eberle, James T. Shinn, Edward Parrish, and Robert England, and I have notified each one this day of their appointment.

Very respectfully,
Wm. Culbertson, *Clerk*.

Alumni Association of the Philadelphia College of Pharmacy.—The fact that the graduates of this College are scattered all over the United States,

renders the attendance at their annual reunions usually less numerous than was probably anticipated. Besides those residing in and near Philadelphia, few can spare the time, leaving the expense out of consideration, to be present every year. But every graduate might, and through the medium of this Association ought to, remain in communication with his Alma Mater, and we therefore refer with pleasure to the advertisement of its Secretary, in which such a plan is suggested. Perhaps, if more general reunions were contemplated, say decennially, they would become interesting occasions, and would probably attract many of the older graduates by the prospect of meeting their collegiate friends, and view the changes which time has wrought, not only by thinning their former circles, but likewise by replenishing the broken links with younger members of the profession; the institution from which they obtained their honors would certainly receive a fair share of their attention.

The Pharmacy Bill for Ohio failed to pass on the 19th of April, lacking seven votes to secure its passage. A friend of this measure very pertinently writes on this subject: "A short time ago, two young men took Seidlitz powders; one died within an hour or two, the other was barely saved; the analysis by Mr. Fennell showed arsenic. If such an *accident* happened to the members of the Legislature, perhaps they would show more interest in this movement."

We have read the testimony in this case before the coroner in the Cincinnati newspapers, and were astonished that no question was asked about the place where arsenic was kept, and no investigation made of the contents of the vessels from which the powders were *said* to have been put up. From the published evidence, this might just as well be a case of suicide, as of criminal neglect.

Science in the Courts.—The protracted trial of Mrs. Elizabeth G. Wharton on the charge of poisoning General W. S. Ketchum, which took place a few months ago, at Annapolis, Md., and lasted forty-three days, is fresh in the memory of our readers, as is also the voluminous expert testimony submitted to the jury. It is not our purpose to review the same, but merely to state that Professor Aiken's testimony furnished merely *presumptive*, but not *conclusive*, evidence of the presence of antimony in the stomach of the deceased, because, 1, he did not take proper precautions against interference with his results during his absence; 2, he kept no notes, but relied mainly upon his memory; 3, his written reports differed materially from each other; 4, he had not recently examined the reagents employed as to their purity; 5, he did not preserve the results of his investigation for subsequent verification by other experts, if deemed necessary; 6, after destroying the organic matter by hydrochloric acid and chlorate of potassa, he relied solely upon the following experiments to establish the absence of arsenic: sulphuretted hydrogen produced a dark brownish precipitate, which was very sparingly dissolved by ammonia; 7, without destroying the organic matter, the following tests only were employed to prove the presence of antimony; sulphuretted hydrogen produced a brownish-red precipitate, which was dissolved in muriatic acid; the solution yielded with water a white precipitate, which turned orange red with sulphide of ammonium, and was soluble in nitric acid.

Professor Tonry's experiments were also unsatisfactory, for various reasons. In this trial it took several days to contradict this expert testimony.

The *Scientific American* of March 9th, p. 167, relates another instance of unreliable expert testimony.

"In a recent trademark suit, relating to the manufacture of mustard, Dr. Ogden Doremus, of New York, swore that mustard seeds contained over eleven per cent. of starch. To prove it, he used a solution of iodine upon mustard placed on filtering paper, which paper gave, when tested, the characteristic reaction of iodine with starch when no mustard was present. The error in the experiment was pointed out by Professors Seely and Chandler. Dr. Doremus was aided by Dr. Austin Flint, who tried to confirm, by the use of a microscope, what Dr. Doremus tried to prove by the iodine test. Dr. Flint swore that he could see the granules of starch by the use of a high power. Professors Seely and Chandler could not see any such granules, but they did see what they thought might have been fragments of the exterior envelopes of the seeds. Dr. Doremus has, in a letter since published, affirmed the presence of starch in mustard seed (he says nothing of the percentage), and attempted to prove it by a test which would give the same results with cellulose as with starch."

When mustard seeds are freed from their fixed oil by oil of turpentine, and then washed with alcohol, the residue is not colored blue by iodine. Starch granules have never been observed in mustard seed; but *amorphous* starch was at one time supposed to be contained therein; the above experiment, however, completely disproves this.

The *Scientific American*, in commenting upon a number of similar cases, correctly says that now the jury must make a guess as to what is right or wrong, and the average juryman is rather more likely to guess wrong than right in matters of science. It concludes an article, with the above caption, as follows:

"Now there is a plain, simple and practical remedy for this state of things. In all cases where there are points of law to be decided, there is an arbiter on the bench to perform that office. There should be an equally authoritative tribunal to decide on scientific points, a separate jury of experts, if may be, constituting, for the time, a scientific court, whose charge to the jury should be as authoritative as that of the judge. Would it not be refreshing to hear such a witness as the one mentioned above, who swore to finding aconite, disposed of in the following fashion?: 'It is my duty, gentlemen of the jury, as foreman of the scientific jury in this case, to instruct you that aconite cannot be detected by the process described in the testimony of the witness. However much he may be convinced that he did so, it is contrary to known laws of chemistry to suppose that he so obtained it. You are, therefore, to dismiss from your minds the possibility of such a result, in your deliberations of the case.' Or perhaps this:

"'The process sworn to by A will obtain arsenic from the stomach of a person poisoned by that substance. The process sworn to by B will not obtain it. A says that by his process he found no arsenic: B says he found it in a process by which he could not have found it. It remains for you to judge whether, if by an accurate method arsenic could not be found, the testimony of one who swears he found it by an impossible process proves its presence.'

"Let such a course be pursued, and we soon should have somewhat less of *pseudo* science on the witness stand, and true scientific testimony would become of real value."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pharmacopœa Danica. Regia auctoritate edita. Hauniæ. Impensis Reitzelii. 1868. 8vo., 356 pages.

The Danish Pharmacopœia.

In 1865, delegates from Denmark, Norway and Sweden assembled in the city of Stockholm, to confer about the pharmacopœias of the three countries then requiring a revision. The main results of this conference consist in the designation of the proportions in *all* formules by *parts* (by weight), the adoption of uniform strength for all galenical, and particularly the more powerful, preparations contained in the three pharmacopœias, and in the selection of a uniform system of nomenclature; hence the three pharmacopœias are, in the main, identical with each other, and differ chiefly in the manipulations directed and some other minor points. A review of one pharmacopœia applies, therefore, to the others, with the exceptions mentioned.

Although the Danish pharmacopœia was issued two years in advance of the Norwegian, reviewed in our February number, it will be of interest to compare the two with each other.

The tables appended to the pharmacopœia now before us are not quite as numerous as in the other; those giving the strength and specific gravity of ammonia and of various acids, also the tables of solubility and of atomic weights have not been introduced. One of the tables compares the degrees of Spendrup's (temper. 11·25° C.) with those of Tralles' (temper. 15·625° C.) alcoholometer, the former being principally used in Denmark; 1° Sp. = 4·857 Tr.; 4 = 22·88; 8 = 47; 12 = 71·5 and 16° Sp. = 93·25° Tr, Morphia is not kept in a locked closet, but the shop bottle must be marked †††, like all other heroic medicines.

Tinctures are made in the proportion of 1:10 or 1:5 (by weight) either by maceration at 15 to 20° C. for eight days, or by digestion at 35 to 40° C. for three days, any loss in weight, which may have been sustained during the opertion, to be made up, before filtration, by the addition of 85 per cent. alcohol. Plasters are preserved in metallic boxes over burned lime, which is to be renewed every three or four weeks. Dry narcotic extracts are made, as by the Prussian Pharmacopœia, by adding enough powdered liquorice root, so that the exsiccated powder has double the weight of the extract used; in prescriptions double the quantity ordered is dispensed. The Norwegian pharmacopœia has the narcotic extracts *only* in the powder form; all contain one-fourth of their weight of milk sugar. Pills, if not otherwise directed by the physician, are made so that each contain 0·12 grm. of the articles enumerated in the prescription.

All the medicated waters are distilled, one part of the drug yielding ten parts distillate (aqua rosæ 1·3; aqua amygdalarum amararum concentrata contains 0·136—0·140 per cent. hydrocyanic acid; the dilute bitter almond water is made by adding to one part of the former 19 parts of distilled water). The Norwegian pharmacopœia prepares all medicated waters by agitating one part of the volatile oil with 1000 parts of the water; if, however, the physician specially orders *distilled* medicated waters, they are to be obtained by distilling from fruits or

seeds 20 parts, and from leaves, herbs or barks 10 parts. Unlike the latter, the Danish pharmacopœia still gives processes for many chemicals, but none for the alkaloids or their salts.

The processes as well as the descriptions and tests of purity are given in a concise but clear language, chemical tests of identity being usually omitted. We append a few of the complex formulas, some of which it will be noticed, order rather indefinite quantities of coloring material. *Pharm. Norv.* contains the same preparations, mostly improved by simplifying the process.

Unguentum nervinum.

℞.
Herbæ Majoranæ minutim concisæ, 1 p.
Florum Lavandulæ minutim concisorum, 2 p.
Fructus Lauri grosse pulverati,
Radicis Pyrethri grosse pulverati, of each, 3 p.
Digest for twelve hours in
Spiritus concentrati (sp. gr. 0·830), 18 p.
Fuse in a water bath
Ceræ flavæ, 6 p.
Sevi ovilli, 24 p.
Axungiæ Porci, 48 p.
and continue the digestion until the alcohol has evaporated, express the mass between hot plates, strain, and when nearly cold, add
Ætherolei Rosmarini, 6 p.
Before straining, add to the hot ointment turmeric and finely powdered indigo to produce a bright green color.

Unguentum Acetatis plumbici compositum—Unguentum hæmorrhoidale.

℞.
Stigmatum Croci pulveratorum, 1 p.
Camphoræ pulveratæ, 2 p.
Olei Hyoscyami infusi, 4 p.
Unguenti acetatis plumbi (1 in 10) 18 p.
M.

Species fumales.

℞.
Succini, 60 p.
Gummi-resinæ Olibani, 120 p.
Resinæ Benzoes, 180 p.
Bruise separately, remove the fine powder, and add
Ætherolei Cedro,
Ætherolei Lavandulæ, of each, 1 p.
Mix.

Tinctura Lavandulæ rubra.

℞.
Corticis recentis fructus Citri minutim concisi, 3 p.
Florum Lavandulæ minutim concisorum, 36 p.
Spiritus diluti (sp. gr. 0 89),
Aquæ communis, of each, 150 p.
Macerate over night and distil 150 parts; digest the distillate with
Corticis Cinnamomi, Cassiæ, 4 p.
Fructus Cubebæ,
Florum Caryophylli, of each, 1 p.
Ligni Santali rubri pulverati, q. s.
to impart a deep red color.

Tinctura Digitalis rubra—Elixir antasthmaticum Aaskovi.

℞.
Foliorum Digitalis nuper grosse pulveratorum, 2 p.
Radicis Glycyrrhizæ echinatæ minutim concisæ, 4 p.
Ligni Santali rubri pulverati, 1 p.
Aquæ Fœniculi,
Spiritus diluti, of each, 10 p.
Digest.

Emplastrum Manus Dei.

℞.
Emplastri oxydi plumbici, 150 p.
Æruginis subtillissime pulveratæ, 4 p.
Boil with frequent agitation until of a brown red color, then add
Ceræ flavæ, 32 p.
and, when somewhat cooled, mix with
Gummi-resinæ galbani pulverati,
Gummi-resinæ Ammoniaci pulverati,
Gummi-resinæ Olibani pulverati, of each, 4 p.
Gummi-resinæ Myrrhæ pulverati,
Resinæ Mastiches pulveratæ, of each, 1 p.
and form into rolls.

Address of Noble Young, M.D., Professor of Principles and Practice of Medicine, &c. Delivered on the Occasion of Laying the Corner Stone of the Building for the College of Physicians and Surgeons of Wilmington, N. C., Dec. 27th, 1871.

History of Medicine from the Earliest Ages to the Commencement of the Nineteenth Century. By Robley Dunglison, M.D, LL.D., &c. Arranged and edited by Richard J. Dunglison, M.D. Philadelphia: Lindsay & Blakiston, 1872. Small 8vo, 287 pages. Price, bound in cloth, $2.50.

This is a posthumous work of the late distinguished Dr. Robley Dunglison, well known by his numerous contributions to medical science and as a successful teacher of the institutes of medicine and medical jurisprudence in the Jefferson Medical College of Philadelphia. The work was arranged and revised by the son of the deceased, from the manuscript lectures on this subject formerly delivered at the University of Virginia at the time when Thomas Jefferson was Rector thereof. While it does not pretend to be exhaustive, it gives a clear picture of medicine, and its gradual development, in an attractive style, presenting all the principal laborers in this science, with their chief accomplishments and theories, but carefully avoiding prolixity, to which a discussion of these subjects is apt to lead. A chapter has been added by the editor relating to the medical history of America.

The work is printed, in clear types, upon strong tinted paper, and presents a handsome volume, deserving a place in the library of the physician.

Memoranda on Poisons. By the late Thomas Hawkes Tanner, M.D., F.L.S. Third and completely revised edition. Philadelphia: Lindsay & Blakiston, 1872. 16mo, 155 pages. Price, bound in cloth, 75 cents.

This appears to be a useful little volume, adapted particularly for the student, and also the practitioner of medicine. Descriptions of the poisons, symptoms of poisoning, post-mortem appearances, treatment and the detection of poisons, are treated under the different headings, the poisons being conveniently arranged in accordance with their chemical nature or their influence upon the animal economy. An attempt has been made by the editor to adopt the modern system of nomenclature, but has not been carried through, the so-called modern and older systems being promiscuously mixed. In the appendix is a table from Dr. Garrod's "Materia Medica," showing the proportions in which some of the more important drugs are contained in the officinal preparations. This table refers to the British Pharmacopœia, but ought to have been altered to agree with our national standard; for, although most officinal preparations approximate in their strength as prepared by the two pharmacopœias, they are by no means alike, and the difference, for instance in tincture of aconite root, is too considerable to be overlooked. A pretty complete index is a valuable addition, enhancing the usefulness and convenience of the volume.

Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution for the Year 1870. Washington: Government Printing Office, 1871. 8vo, 494 pages.

The official report contains, upon the first 88 pages, the usual information concerning the operations of this institution during the year 1870. This is followed by biographical memoirs and sketches of several scientific persons: Professor A. D. Bache, Francis Arago, William Herschel, H. G. Magnus and

Chester Dewey, and by a number of interesting lectures and essays on various scientific subjects.

Dr. Rigby's Obstetric Memoranda. Fourth edition, revised and enlarged. By Alfred Meadows, M. D. Philadelphia: Lindsay & Blakiston, 1872. 16mo, 104 pages. Price, bound in cloth, 50 cents.

A succinct account of the various conditions of pregnancy, natural, unnatural and complex labor, obstetric operations and puerperal diseases.

Lecture on Water, delivered before the American Institute of the City of New York, in the Academy of Music, January 20th, 1871. By Professor C. F. Chandler, Ph. D. Albany, 1871.

This interesting lecture is reprinted from the Transactions of the American Institute for 1870—71, and is illustrated by several plates.

The Question of Quarantine; the Nature and Prevention of Communicable Zymotic Diseases. By Alfred L. Carroll, M. D. New York: F. Leypoldt, publisher, 1872. 8vo, 21 pages. Price 50 cents.

This pamphlet is printed from advance sheets of the "Medical Gazette," and contains a paper which was read before the Medical Library and Journal Association of New York Jan. 5th, 1872.

Chicago Relief. First Special Report of the Chicago Relief and Aid Society. Chicago, 1871. 8vo, 63 pages.

First Annual Report of the Dispensary of Skin Diseases, No. 216 *South* 11*th Street, Philadelphia.* 1872. 8vo, 15 pages.

OBITUARY.

Elijah W. Sackrider, M. D., died on the 14th of April last. He had been in the drug business for a number of years, in Cleveland, O., and was highly esteemed by all who knew him; he was connected with the American Pharmaceutical Association from 1859 to 1870, and was at one time one of its vice-presidents. A friend writes of him: "When I think of his bright eye, elastic step, and youth-like eagerness in the pursuit of whatever might be the object of our search, 'I cannot make him dead.'" He lately visited the South, having been ailing for some time from a pulmonary complaint, which terminated his life.

James G. Fritchey, a graduate of the Philadelphia College of Pharmacy, of the class 1868–69, was born at Mechanicsburg, Cumberland County, Pa., April 6th, 1849, and learned the apothecary business with Mr. E. B. Garrigues, of this city. Shortly after he graduated, the symptoms of pulmonary consumption made their appearance, and the disease closed his earthly career on November 4th, 1871, at his father's residence. The deceased was a conscientious and promising young man.

EXCHANGES RECEIVED SINCE FEBRUARY.

American Chemist, February, March—American Journal of Science and Arts, February to April—American Journal of Insanity, January—American Journal of Medical Sciences, April—American Practitioner, February to April—Atlanta Medical and Surgical Journal, January to March—Archiv d. Pharmacie, December to February—Bowdoin Scientific Review, ii., 22, 23—Boston Journal of Chemistry, February, April—Boston Medical and Surgical Journal, viii., 4 to 16—Buffalo Medical and Surgical Journal, January to March—Canadian Pharmaceutical Journal, February, March—Chemical News, 633–646—Chemist and Druggist, January to March—Chemisches Central Blatt, 49–52, 1872, 1 to 10—Chicago Medical Examiner, xiii, 1 to 6—Chicago Medical Journal, October to March—Chicago Medical Investigator, ix, 2 to 4—Cincinnati Lancet and Observer, February to April—Dental Cosmos, February to April—Druggists' Circular, February to April—Detroit Review of Medicine and Pharmacy, February to April—Eclectic Medical Journal, February to April—Good Health, February to May—Georgia Medical Companion, January to March—Industrial Monthly, 2, 3—Journal of Applied Chemistry, 2 to 4—Journal of Franklin Institute, February to April—Journal of Materia Medica, 1 to 4—Journal of the Gynæcological Society, February, March—Journal de Pharmacie et de Chimie, January to March—Kansas City Medical Journal, ii, 1, 2—Lens, Chicago, i, 1—Leavenworth Medical Herald and Journal of Pharmacy, February to April—Medical Press and Circular, Dublin, 1717–1729—Medical and Surgical Reporter, 8 to 16—Medical News and Library, February to April—Nashville Journal of Medicine and Surgery, January to March—Neues Jahrbuch f. Pharm., November to February—Neues Repert. f. Pharm., December to February—New York Medical Journal, February to April—Northwestern Medical and Surgical Journal, December to February—Pacific Medical and Surgical Journal, February to April—Pharmacist, January to April—Pharmaceutical Journal and Transactions, 81–99—Pharm. Centralhalle, 1872, 1 to 14—Pharmac. Zeitung 1871, 87–95—Philadelphia Medical Times, 33 to 36, 38—Proceedings Amer. Philosophical Society, xii, 2—Répertoire de Pharmacie, December to March—Richmond and Louisville Medical Journal, February to April—St. Louis Medical and Surgical Journal, February to April—Scientific American, xxvi, 6 to 18—Virginia Clinical Record, February to April—Wittstein's Vierteljahresschrift, xx, 4, xxi, 1, 2—Zeitschr. f. Analytische Chemie, x, 4—Zeitschr. f. Chemie 13 to 17—Zeitschr. d. Allgem. Oesterr. Apotheker-Vereins, 1871 35 36, 1872, 1 to 7.

June 4

VOL. XLIV.] [NO. VI.

AMERICAN JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] JUNE, 1872. [VOL. II, NO. VI.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published MONTHLY, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

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THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists aud Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

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THE

AMERICAN JOURNAL OF PHARMACY.

JUNE, 1872.

GUN COTTON AND ITS PREPARATIONS.

BY CHARLES H. MITCHELL.

From an Inaugural Essay by the Author.

A number of experiments were tried, with a view of ascertaining the relative proportions of cotton and acids, together with the proper time for maceration necessary to produce a cotton which should combine the largest yield with the highest explosive power and solubility. The following formula was at length adopted:

Raw Cotton	2 parts.
Carbonate Potassa	1 "
Distilled Water	100 "

Boil for several hours, adding water to keep up the measure; then wash until free from any alkali, and dry. Then take of:

Purified Cotton	7 oz. av.
Nitrous Acid,* s. g. 1·42	4 pts.
Sulphuric Acid, " 1·84	4 "

Mix the acids in a stone jar capable of holding 2 gals., and when cooled to about 80° Fahr., immerse the cotton in small portions at a time; cover the jar and allow to stand 4 days in a moderately cool place (temp., 50° to 70° Fahr.). Then wash the cotton in small portions, in hot water, to remove the principal part of the acid; pack in a conical glass percolator, and pour on distilled water until the washings are not affected by sol. chloride barium.; drain and dry. Yield, 11 oz. av.

This cotton is perfectly white, of a harsh, gritty fibre, very explo-

* Nitric, saturated with nitrous acid.—EDITOR AMER. JOUR. PHARM.

sive, leaving scarcely any ash, soluble in ether, ether fortior, acetic ether, glacial acetic acid, and in mixture of alcohol and ether, varying from 1 part ether to 3 parts alcohol to pure ether itself. If a cotton superior to this is desired, it may be obtained by treating this cotton with an additional proportion of the mixed acids, washing and drying as before. The cotton gains about one per ct. in weight, becomes perfectly soluble, and is so free from any ash as to scarcely scorch a sheet of white paper it may be burnt on. Both this and the previous gun cotton may be ignited on gunpowder without exploding it. The advantages claimed for this cotton over that of the U. S. P. are that it is perfectly soluble, very explosive, cheap, its manufacture is much more easy, requiring but little time and attention, and turning out a superior product with large yield and less cost.

The subject of collodion next claims our attention, it being the most important pharmaceutical preparation of gun cotton. The applicability of gun cotton in ethereal solution to the dressing of wounds, inflamed surfaces, &c., was first made known by Dr. Horace Maynard, of Boston. Its valuable properties soon commanded attention, and at once supplied a want long felt in the medical profession. No better formula for collodion can be found than that of the U. S. P. Using the cotton prepared as before mentioned, it left nothing to be desired.

Collodion can also be made the vehicle for other medicines. Those remedies which are used externally, of course, can only be administered in this manner. Having made a number of experiments on this subject, I present the following formulæ, several of which I think are new:

Styptics.

Styptic Collodion.

℞.	Tannin	℥ij.
	Stronger Alcohol	f℥iv.
	" Ether	f℥xii.
	Soluble Cotton	ʒj ℈ij.
	Canada Balsam	ʒj.

Introduce the cotton into a suitable bottle, pour on it 2 fluidounces of alcohol, shake well; then add 10 fluidounces of the ether, and agitate frequently until dissolved. Dissolve the tannic acid in a mixture of the remainder of the alcohol and ether, mix with the first liquid, add the balsam, allow to stand until clear; then pour off.

Collodion with Sesquichloride of Iron.

℞.	Sesquichloride of Iron	ʒj grs. iv.
	Stronger Alcohol	f℥iv.
	" Ether	f℥xij.
	Soluble Cotton	ʒj grs. iv.

Into a suitable bottle introduce the cotton, pour on 2 fluidounces of the alcohol, and shake well; then add the ether, and agitate frequently until dissolved. Dissolve the sesquichloride of iron in the balance of the alcohol; mix with the prepared collodion.

Anodynes.

Collodion with Aconite.

℞.	Pulv. Aconite Root	℥ij.
	Ether	f ℥vj.
	Soluble Cotton	ʒj grs. iv.
	Stronger Alcohol	q. s.

Mix the ether with 2 fluidounces of alcohol, moisten the aconite with 1 fluidounce of this, pack in a percolator and percolate with the balance, pouring on *q. s.* alcohol to recover 8 fluidounces, in which dissolve the cotton.

Collodion with Belladonna.

℞.	Powdered Belladonna Root	℥ij.
	Ether	f ℥vj.
	Alcohol	q. s.
	Gun Cotton	ʒj grs. iv.

Mix the ether with 2 fluidounces of alcohol, moisten the belladonna with 1 fluidounce of this, pack in a percolator and percolate with the balance, pouring on *q. s.* alcohol to recover 8 fluidounces, in which dissolve the cotton.

Antiseptics and Disinfectants.

Collodion with Carbolic Acid.

℞.	Carbolic Acid	ʒj.
	Ether	f ℥vj.
	Stronger Alcohol	f ℥ij.
	Gun Cotton	ʒj grs. iv.

Dissolve the gun cotton in the ether and alcohol mixed, and then add the carbolic acid.

Collodion with Sulphocarbolate of Zinc.

℞.	Sulphocarbolate of Zinc	ʒj.
	Ether	f ℥vj.
	Stronger Alcohol	f ℥ij.
	Gun Cotton	ʒj grs. iv.

Introduce the cotton into a suitable bottle, add 1 fluidounce alcohol, shake well; add the ether, and agitate frequently until dissolved. Dissolve the zinc salt in the balance of the alcohol, and mix with the prepared collodion.

Collodion with Thymol.

℞.	Thymol	ʒj.
	Ether	f ℥vi.
	Stronger Alcohol	f ℥ij.
	Gun Cotton	ʒj grs. iv.

Dissolve the cotton in a mixture of ether with part of the alcohol, dissolve the thymol in the balance of the alcohol, and mix.

Stimulants in Cutaneous Diseases.

Collodion with Iodide of Mercury.

℞.	Mercuric Iodide	ʒj.
	Potassium Iodide	ʒss.
	Alcohol	f ℥iv.
	Ether	f ℥iv.
	Gun Cotton	ʒj grs. iv.

Triturate the iodides together in a mortar, add the alcohol boiling, and rub until they are completely dissolved. Then add the gun cotton, lastly the ether, and agitate frequently until the cotton is all dissolved.

Stimulants and Rubefacients.

Collodion with Arnica.

℞.	Pulv. Arnica	℥iv.
	Ether	f ℥xij.
	Stronger Alcohol	q. s.
	Gun Cotton	ʒij grs. viij.

Mix the ether with 4 fluidounces alcohol. Moisten the arnica with *q. s.* of this, pack in a percolator and pour on the balance, following with alcohol until 16 fluidounces of tincture have been recovered; to this add the cotton, and agitate frequently until dissolved.

Collodion with Capsicum.

℞.	Grd. Capsicum	℥iv.
	Ether	f ℥xij.
	Stronger Alcohol	q. s.
	Gun Cotton	100 grs.

Proceed as in collodion with arnica, recovering 16 fluidounces of tincture, in which dissolve the gun cotton.

Collodion with Mezereon.

℞.	Grd. Mezereon	℥iv.
	Ether	f ℥xij.
	Alcohol	q. s.
	Gun Cotton	128 grs.

Mix the ether with 4 fluidounces of strong alcohol, and in this allow the mezereon to macerate one week. Drain, pack tightly in a conical percolator, pour on the separated liquid, and follow with enough alcohol to recover 16 fluidounces of tincture, in which dissolve the cotton.

Collodion with Savin.

℞.	Powd. Savin Leaves	℥iv.
	Ether	f ℥xij.
	Alcohol	q. s.
	Gun Cotton	grs. 128.

Proceed in same manner as collodion with capsicum.

Collodion with Black Pepper.

R.	Grd. Blk. Pepper	℥iv.
	Ether	f℥xij.
	Alcohol	q. s.
	Gun Cotton	128 grs.

Proceed in same manner as in collodion with capsicum.

Vesicants.

Collodion with Cantharides.

R.	Powd. Cantharides	℥iv.
	Ether	f℥xij.
	Stronger Alcohol	q. s.
	Gun Cotton	80 grs.

Moisten the cantharides with a small portion of the ether, and pack in a conical percolator. Then pour on the balance of the ether, mixed with 4 fluidounces alcohol, and follow with enough alcohol to recover 16 fluidounces, in which dissolve the gun cotton.

These collodions can be used as substitutes for many of the officinal plasters, having the advantage of occupying a small bulk, ready adaptability to any surface, and powerful therapeutic action.

I have endeavored, as far as possible, to give some practical information on a branch of pharmacy of which comparatively little is known. The subject is, I think, an important one, since gun cotton and collodion occupy a high position in both medicine and the useful arts, and to its elaboration and useful application too much study cannot be devoted.

CITRATE OF IRON AND BISMUTH.

A New Remedy for Dyspepsia, &c.

By Charles Rice.

Although I call this preparation new, it has been in use for several years in the public hospitals and dispensaries of this city, and also in private practice, and has acquired the reputation of being one of the most prompt and valuable remedies at present known for gastric disturbances, depending upon an abnormal or defective digestion generally, and particularly so for the gastric intolerance of consumptive patients. Its action is often so prompt that one full dose has in many instances afforded immediate relief.

Being requested some years ago to devise a liquid preparation containing bismuth and iron (at that time intended for use in some other complaints), I finally, after various trials, adopted the following formula, which I have followed ever since:

Take of citrate of bismuth, ammonio-citrate of iron, each 320 grs.; water of ammonia, water, each a sufficient quantity.

With 4 oz. of water rub the citrate of bismuth into a smooth paste; gradually add water of ammonia until solution has taken place, being very careful not to have an excess of ammonia. Now add the ammonio-citrate of iron and some more water; dissolve, filter, and wash the filter with enough water to make the solution measure 1 pint.

This solution, if intended to be long kept, may be partly made up with glycerin, although I cannot speak from experience whether it is so well borne by the stomach. A more useful addition, however, is good sherry wine, of which there may be used 10 fl. oz. (or perhaps more), in place of so much water.

The above solution is prescribed under the name of Liquor Ferri et Bismuthi Citratis, and contains in 1 fluid-drachm 2½ grains each of citrate of bismuth and ammonio-citrate of iron. The dose is from 1 to 2 fluid-drachms, half an hour before meals, or—when required—after meals.

It is, of course, no true double salt, chemically speaking, but only a mixture of ammonio-citrate of bismuth and ammonio-citrate of iron; and, although a true double salt containing those elements might perhaps be prepared, I doubt whether it could have any better effects.

The solution may also be prepared of a concentrated state, and spread upon plates of glass to dry, yielding exceedingly handsome scales of a golden-brown color, which must be protected from the light, and 5 grains of which are equal to 1 fluid-drachm of the solution.

New York, May 5th, 1872.

IODIDE AND BROMIDE OF POTASSIUM.

By Chas. D. Chase.

The object of this note, as will be seen, is simply to call the attention of dispensers to the fact that most of the iodide and bromide of potassium found in the market, instead of being neutral, are alkaline in their reactions, and to illustrate the importance of this fact being generally known, the following is given.

The following prescription was prepared, with results as given below:

℞.	Morph. Sulph.,	gr. iv.	
	Aquæ Cinnam.,	℥ij.	
	Potass. Bromid.,	ʒiij.	
	Syr. Tolut.,	℥iss.	
	Elix. Calisayæ,	ʒiv.	M.

The morph. sulph. was weighed and introduced into a four-ounce vial, the potass. bromid. weighed and rubbed in a mortar with the aqua cinnam. until entirely dissolved, and the solution poured over the morph. sulph. contained in the vial. The morph. sulph. refusing to dissolve after shaking, the vial was set aside and the preparation begun anew.

This time the morph. sulph. was dissolved in the elix. calisayæ, the potass. bromid. in the aqua cinnam., and the two solutions mixed.

A precipitate immediately followed, which, upon the addition of the syr. tolut., and after shaking, slowly arose to the surface of the mixture.

The preparation not being entirely satisfactory, a few experiments were made with the view of ascertaining the cause of precipitation. To be assured that the fault was not with the aqua cinnam. (which had been made by distillation from the bark), the prescribed quantity each of morph. sulph. and potass. bromid. was dissolved separately in distilled water, and the two solutions mixed.

The same result was obtained as when aqua cinnam. was used as the solvent.

An examination was next made of the morph. sulph. (Powers & Weightman's), which proved to be pure sulphate of morphia. The chances for the potass. brom. to prove perfectly faultless now looked rather "slim." A solution of the suspected salt (also bearing P. & W.'s label) was made in distilled water, and tested with litmus and turmeric paper. The solution gave with both papers a decided alkaline reaction, which fact solved the mystery of the precipitation; for, as is well known, the alkalies and their carbonates precipitate morphia from solutions of its salts; and when the morph. sulph. solution came in contact with the free alkali (potassa) contained in the potass. bromid. solution, the precipitate must inevitably have taken place.

Several samples each of iodide and bromide of potassium were tested with turmeric paper, and in every instance the same alkaline reaction was observed.

The foregoing serves to show how serious accidents might occur by

dispensing the salts of morphia (or other alkaloids) with iodide or bromide of potassium which gives an alkaline reaction; for if prescribed with syrup, as in the above prescription, the precipitated morphia will rise to the surface of the mixture, and, should it not be "shaken before taken," the patient will be liable to take all, or nearly all, the morphine in the mixture at a single dose.

It is therefore advisable for the dispenser, whenever a morphia salt is prescribed with iodide or bromide of potassium in solution, to first dissolve the latter, test the solution with turmeric or red litmus paper, and if alkaline neutralize with dilute muriatic acid before adding the morphia salt; and a bottle of the acid mentioned and the necessary test paper should be placed convenient to the prescription counter, for this if for no other purpose.*

With a small proportion of morphia salt the precipitate is often not observed until after standing a short time.

St. Louis, April 18th, 1872.

ON A NEW PROCESS FOR DETECTING BROMIDE IN IODIDE OF POTASSIUM.†

By Edm. Van Melckebeke, D. Sc.

The proposed process is based upon the property of a saturated solution of one salt to dissolve another one, provided the two salts do not produce a precipitate with each other. If to a saturated solution of bromide of potassium a small quantity of pure iodide of potassium is added, it will completely dissolve; but if it was contaminated with bromide of potassium, this impurity will remain undissolved. The quantity of iodide dissolved in this case is much smaller than that soluble in the same volume of water at the same temperature. This solubility has a limit which cannot be exceeded without precipitating bromide, caused by the isomorphism of the two salts, and by the great difference in their solubility.

It is known that a mixture of salts which are not isomorphous, dissolves always to a greater extent in water than either salt alone under

* Commercial iodide of potassium is usually crystallized from alkaline solutions in order to obtain it in opaque cubes; recrystallization or granulation from water will effectually remove any adhering alkaline carbonate.—Editor Amer. Jour. Pharm.

† Condensed from a paper read before the Société de Pharmacie d'Anvers, and communicated by the author.

the same conditions. Isomorphous salts behave differently. Von Hauer* proved by interesting researches that, the physical conditions being identical, a given weight of a solution of mixed isomorphous salts contains the same quantity of solid matter which is contained in a like weight of a saturated solution of the most soluble salt.

100 parts of water dissolve, at 16° C., 140·10 p. iodide of potassium. The author found that the same quantity of water dissolves, at the same temperature, 63·39 p. bromide of potassium. At this temperature all the following experiments have been made.

When an excess of a mixture of bromide and iodide of potassium is treated with water, 100 p. of it dissolve 140 p. of the mixture, and the analysis of the dissolved portion proves it to be solely iodide of potassium. Von Hauer's proposition may, for this case, be rendered as follows: If a mixture of bromide and iodide of potassium is treated with water, the latter salt alone is dissolved, if its quantity is sufficient to saturate the water.

It might be supposed that 100 p. of water saturated with bromide would dissolve $140{\cdot}10 - 63{\cdot}39 = 76{\cdot}71$ iodide of potassium; such is, however, not the case. Only 13·15 p. of iodide are taken up, and if more is added, bromide of potassium is precipitated. If double the weight of KBr, soluble in 100 water ($2 \times 63{\cdot}39 = 126{\cdot}78$), is deducted from the weight of KI soluble in the same quantity (140·10), the resulting figure (13·32) closely approaches 13·15 found by experiment, and represents the maximum solubility of KI in 100 water saturated with KBr, which is equal to about 10 parts of the former salt in 100 of the saturated solution.

If pure iodide and bromide of potassium be dissolved separately to saturation in water, the temperature falls 21° and 15° C. This fall in the temperature must be taken into consideration in making the saturated solution of KBr, and in adding thereto the iodide, particularly if larger quantities are operated upon. The bromide of potassium is, therefore, dissolved in warm distilled water, the solution is allowed to cool, and after crystallization decanted or filtered.

To 10 c. c. of this solution 10 drops of distilled water are added in a test-tube, and afterwards, in small quantities, under repeated agitation, 1 gram. of the suspected iodide in coarse powder. If free from bromide, it will dissolve almost instantly, while this impurity, if present, will remain undissolved.

* Journal für Praktische Chemie, vols. xcviii and clii.

The addition of water is not indispensable, if the iodide is introduced carefully little by little and the liquid well agitated. If these precautions are not observed, the iodide dissolving rapidly, will locally precipitate some bromide, and render the result doubtful. If 10 drops of water are previously added to the 10 c.c. of the saturated solution this inconvenience is avoided.

The water added will scarcely dissolve any bromide of potassium. In making the experiment before the Pharmaceutical Society of Antwerp, a small fragment of bromide was mixed with 1 grm. of iodide of potassium, and remained unaltered for at least twenty minutes after the gradual addition and solution of the iodide.

The author recommends this perhaps more empirical than scientific process, not with the view to supersede the more exact though more tedious ones, but rather as a quick and practical method to detect the falsification of iodide with bromide of potassium, as well as its substitution by the latter salt.

ON SOME CONSTITUENTS OF ERICACEOUS PLANTS.

By Jefferson Oxley.

From the Author's Inaugural Essay.

Of this order *Uva ursi* and *Chimaphila umbellata* have, upon examination, been found to contain arbutin, urson and ericolin. Thinking it of some interest to know if these principles are alike common to other plants of the same order, *Gaultheria procumbens* and *Epigæa repens* were submitted to examination.

From two pounds of *Gaultheria*, as usually found in market, after removing the larger stems, the remaining leaves and smaller stems weighed one pound and six ounces, showing a loss of 31 per cent. Garbling one pound and a half of *Epigæa repens* in the same manner, one pound of leaves and small stems remained, indicating a loss of 33 per cent.

Reduced to a convenient powder they were digested with water during several hours, strained and expressed, and a second time submitted to like treatment. Upon drying the residue, the *Gaultheria* weighed twelve ounces, a loss of 45 per cent. *Epigæa repens* weighed ten and a half ounces, a loss of about 34 per cent.

The infusions were treated with neutral acetate of lead, the filtrates with subacetate of lead, and filtered. The resulting solutions were almost free from color, being a light yellow. The lead was re-

moved with sulphuretted hydrogen, the solutions filtered and heated to remove excess of hydrosulphuric acid. After concentrating and treating with ammonia to neutralize the acetic acid present, then with animal charcoal, and washing with cold water, the filtrates were reduced by heat, and set aside to evaporate spontaneously. After several days, crystals not appearing, a portion was separated and treated with alcohol, leaving a large per cent. of insoluble extractive matter. The alcoholic solutions were allowed to evaporate to a syrupy consistency, but without the formation of crystals.

At this point the extract of *Epigœa repens* was of a deep reddish-brown color, very much resembling liquorice in odor and taste. On adding sulphuric acid to a dilute solution of this extract, no precipitate was produced indicating the absence of glycyrrhizin.

The extracts were dissolved in water, treated with animal charcoal, washed, and the filtrates set aside to evaporate, but failed to yield crystals. The charcoal used in the latter case was digested with alcohol. The alcoholic solutions in each case had a slight color; that from *Epigœa repens* light yellowish-brown, from *Gaultheria* light green. Upon evaporation these solutions yielded a small crop of crystals.

The evaporation was continued for several days, with the hope of a large yield; upon examination the crystalline structure was found in a great measure lost. The yield was too small to apply the various tests for arbutin. Jungmann's test* was applied. A dilute aqueous solution rendered alkaline with ammonia, produced, on the addition of phosphomolybdic acid, a blue color.

A portion of the reserved aqueous extract was submitted to like treatment, producing the blue reaction due to arbutin; the formation of crystals and the reaction with phosphomolybdic acid warrant the conclusion that arbutin is present in each of the plants under consideration. However, it seems present in a much smaller proportion than in *Uva ursi* or *Chimaphila umbellata*, and separated with much more difficulty.

The above extracts were dissolved in a dilute solution of sulphuric acid and distilled, the distillates possessing a peculiar and rather agreeable odor, indicating the presence of a volatile principle liberated by the action of the acid. The distillates possessed an acid reaction, due, no doubt, to the acetic acid present in the lead salt

* American Journal of Pharmacy, 1871, p. 207.

used in the early part of the process. Neutralized with bicarbonate soda and redistilled, the odor remained intact, and the distillates possessed a slight acid reaction. Neutralizing the residue with nitric acid, treating with sesqui salts of iron, produced in each a red color, which was removed upon the addition of a strong acid. Nitrate of silver and protonitrate of mercury gave precipitates which, by heat, liberated the metals in the case of *Epigæa repens*, but not so in that of *Gaultheria*. With a mixture of alcohol and sulphuric added, each gave an odor characteristic of acetic ether, indicating acetic acid. The reaction with the solution from *Epigæa repens* indicated the probable presence of formic acid.

An infusion of *Uva ursi* was also distilled in the presence of sulphuric acid. The odor of the distillate was found, on comparison, to be quite similar to those referred to, that from *Gaultheria* varying somewhat, perhaps owing to the volatile oil.

A portion of the dried leaves remaining from the infusions was treated by percolation with alcohol; the resulting tinctures were of a deep green color, that from *Gaultheria* possessing a beautiful emerald hue. Allowing the tinctures to evaporate spontaneously, the residue was put upon a filter and washed with alcohol to remove the chlorophyll: that from *Epigæa repens* parted with this coloring matter more readily than *Gaultheria;* urson was not obtained in a pure state, but sufficiently so to be sublimed in a test tube. The action of reagents could not be brought to bear upon the principles isolated, owing to the presence of chlorophyll, but as far as examined they agree with urson.

A portion of the precipitates obtained by treating the infusions with acetate of lead was freed from lead. The presence of tannin in the solution was indicated by the production of precipitates with solutions of gelatine, salts of iron (black), tin, mercury, copper, silver (a liberation of the metal by heat), and by the deep red color with alkalies. After freeing the solution from tannin by gelatine, several reagents indicated the presence of gallic acid. After evaporating a portion of the solution with some sand to dryness, and subliming in Mohr's benzoic acid apparatus, pyrogallic acid was not obtained; therefore gallic acid is not present, but a principle having similar reactions. Trommer's test gave reactions indicating grape sugar.

A concentrated infusion of the leaves was precipitated by alcohol, and the dried precipitate was found to contain gum.

The stems and the leaves of *Gaultheria* and *Epigæa*, when distilled with water, did not yield chimaphilin, discovered by Mr. Samuel Fairbank.* In the distillate from the stems of *Chimaphila umbellata* orange red crystals of chimaphilin were obtained, and the yellow aqueous distillate yielded more of the same crystals when agitated with ether.

Among the organic constituents of *Gaultheria* and *Epigæa* have been found, by this examination, arbutin, urson, ericolin, tannic acid, and a principle analogous to gallic acid, formic acid (in *Epigæa*), grape sugar, gum and coloring matter.

ON THE BARK OF JUGLANS CINEREA.

By Charles O. Thiebaud.

From the Author's Inaugural Essay.

A quantity of the fresh bark was gathered, carefully dried and powdered. From a portion of this a decoction was made, and the following reactions observed. No precipitate occurred after acidulation with nitric acid by iodo-hydrargyrate of potassium, thus proving the absence of an alkaloid. Dilute solutions were reddened upon the addition of an alkali. The vapor arising from both the decoction and aqueous extract gave acid indication to moistened litmus, the vapor from the extract turning it a decided cherry-red color. A portion of the powdered bark, moistened with water slightly acidulated with sulphuric acid, and introduced into a retort, gave a straw colored distillate with a faint fusel oil odor, acid to litmus and reddened by alkalies. This being made slightly alkaline by ammonia and set aside in a drying closet, after evaporation to dryness yielded a small quantity of slightly yellowish prismatic crystals, scarcely soluble in alcohol, and with acid reaction. The bark distilled with pure water gave a distillate with acid reaction, but deposited no crystals upon evaporation. The distillate obtained by treating the bark with water rendered slightly alkaline by carbonate of soda was neutral to test paper. These experiments prove a volatile acid to be present in the bark.

The decoction was treated by acetate of lead, the precipitate suspended in water, freed from lead by saturation with hydrosulphuric acid and filtration; the solution evaporated to dryness on a water-

* See Journal of the Maryland College of Pharmacy, March, 1860.

bath, exhausted by alcohol, and the alcoholic solution evaporated in the drying closet to a resin-like extract. This was redissolved in alcohol, and set aside in a cool place. After a few days small acicular crystals were found floating on the liquid. These crystals were in small quantity, colorless, and colored litmus red.

The filtrate was freed from lead by hydrosulphuric acid, and evaporated to dryness on a water-bath; the residue, exhausted by alcohol and evaporated, yielded a bitter extract like mass, soluble in both alcohol and water.

These results not proving satisfactory by the isolation of an acid in quantity sufficient for further examination, the peculiar solvent properties of true benzole were brought into requisition.

A portion of the freshly dried and powdered bark was macerated in this menstruum for four days. The benzole, which at first was colorless, after separation from the refuse matters by expression and filtration, was of a decided bright yellow color. This was set aside and allowed to evaporate spontaneously. After the evaporation had been carried on until the residue ceased to lose weight, the capsule was found to contain a thick oily substance, and the sides were covered by short acicular crystals of a bright orange-yellow color. These exhibit decided acid properties to litmus, are soluble in alcohol and ether, but scarcely so in water. They volatilize without fusing, in solution are reddened by ammonia, and are turned pale violet by potassa, afterwards becoming red. The oily residue remaining after the evaporation of the benzole, was exhausted with alcohol, and the alcoholic solution by spontaneous evaporation yielded crystals similar in form, size and reaction to those deposited on the side of the capsule. The residue insoluble in alcohol was taken up by ether, allowed to evaporate spontaneously to a syrupy consistence, and spread on bibulous paper; thin tabular crystals were obtained which were colorless, acid to litmus, insoluble in water, scarcely so in alcohol, but readily taken up by ether, which solution was not precipitated by chloride of calcium and not affected in color by ammonia or potassa. They are fusible, but being farther heated partly volatilize, leaving behind a charred mass, which burns without residue. The crystals when fused are changed to a dark red liquid, which when treated by ether becomes decolorized.

Chrysophanic acid is soluble in benzole, and since from juglans, by the use of the same solvent, a product is obtained which exhibits some

of the characteristics of the former, we may regard the two acids as closely related. The proper name of this constituent would be juglandic acid.

Solution of sulphate and tincture chloride of iron produced dense dark colored precipitates, but other tests did not prove the presence of tannin.

The decoction affords precipitates, and hence is incompatible with the sesqui- and proto-salts of iron, bichromate of potassium, sulphate of copper, acetate of lead, and nitrate of silver. No effect is produced by yellow and red prussiates of potassium, tannin and antimonial salts.

The bark contains bitter extractive, a large amount of oily matter, juglandic acid (which appears to be related to chrysophanic acid), an acid crystallizing in tabular colorless crystals, a volatile acid, and no tannin. The ashes were found to contain a considerable percentage of potassium, with traces of sodium, calcium and aluminium.

NOTE ON CRYSTALLINE PRINCIPLE OF BARBADOES ALOES.*

By William A. Tilden, D.Sc. London,

Demonstrator of Practical Chemistry to Pharmaceutical Society, G.B.

This substance was examined some years ago by Dr. Stenhouse, who analyzed it and a bromo-derivative.

After several unsuccessful trials, I have obtained from it a chloro-substitute, corresponding to the brominated body already known. It is only necessary to treat the aloïn with excess of chlorine in the presence of concentrated hydrochloric acid. This is most conveniently done by the method adopted by Stenhouse in preparing the chlorinated derivatives of orcin.

Some powdered potassic chlorate was introduced into a quantity of ordinary fuming hydrochloric acid. The crystallized aloïn to be operated upon was dissolved in another portion of the same acid, and the solution so obtained, when quite cold, was poured gradually and with constant agitation into the mixture of hydrochloric acid and chlorate. After each addition of the aloïn, a red coloration was produced, but this instantly disappeared, the solution assuming a clear orange color, and depositing in a few minutes a copious crop of yellow granules, the quantities of which increased by standing for a few hours. It was then filtered off, washed with a little water, and crystallized from

* Reprint from the Journal of the Chemical Society, March, 1872. Communicated by the author.

warm rectified spirit. The tufts of bright yellow prisms which were deposited in a few hours were collected and dried by exposure to dry air. They bear, without change of color or general appearance, a temperature of 120° C., and even much higher. At 120° they lost weight in one experiment to the extent of 10·86, in another 10·04 per cent.

·237 gram gave by boiling with nitric acid and nitrate of silver ·216 of chloride of silver, corresponding to 22·52 per cent. of chlorine.

The formula $C_{17}H_{15}Cl_3O_7 3H_2O$ requires 10·99 per cent of water, and 21·66 per cent. of chlorine.

The proportion of chlorine found being thus a little too high, the substance was recrystallized and carefully washed. This time it was dried at 120° previous to analysis.

I. ·247 gram gave ·251 chloride of silver.

II. ·1835 gram, by combustion with a mixture of lead chromate and potassic dichromate, ·062 H_2O and ·304 CO_2.

	Theory.		Experiment.	
			I.	II.
C_{17}	204	46·62	—	45·17
H_{15}	15	3·42	—	3·70
Cl_3	106·5	24·34	25·13	—
O_7	112	—		—

Again, therefore, the chlorine is rather above, and the carbon below the theoretical numbers, although they are sufficiently near to leave no doubt as to the identity of the body. I think it probable, therefore, that notwithstanding that the crystals are to all appearance clean, and when dissolved in water give no trace of turbidity with nitrate of silver, they are contaminated with a small quantity of another similar body, containing a higher percentage of chlorine.

This chloraloïn is more soluble in water than the corresponding compound containing bromine, and differs from the original aloïn in its comparative stability. Thus, although very soluble in aqueous ammonia, it will crystallize out but little altered when the ammonia is allowed to evaporate, and it may be dissolved in ordinary nitric acid (sp. gr. 1·37), without change of color.

The aloïn from which this body is derived, when acted upon by nitric acid, yields, besides oxalic and picric acids, rather more than

30 per cent. of its weight of chrysammic acid; and in fact I find it a more convenient source of chrysammic acid than crude aloes. But the chlorinated compound, boiled with nitric acid and nitrate of silver, furnishes oxalic and picric acids only, without a trace of either aloetic or chrysammic acid.

In most of the reactions of aloïn and its chloro- and bromo-derivatives, there is such a marked parallel with those of the orcins, that I think it worth while to submit them to a further examination.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Non-existence of Igasuria.—This alkaloid, discovered by Desnoix, and of which Schützenberger claimed to have obtained several modifications, is now stated to be identical with brucia. Jörgensen found that the igasuria exhibited by Ménier at the last Paris Exposition, when treated with periodide of potassium, yielded an iodine compound identical in composition and behavior with the body obtained from brucia under the same conditions.—*Wittstein's Vierteljahres Schr.*, 1872, 275.

Reactions of Quinia and Morphia.—Prof. Flückiger finds the practical limit of the reaction of chlorine water and ammonia upon quinia (green coloration) to be aqueous solutions containing about $\frac{1}{5000}$ alkaloid. The brown coloration produced by the same reagents with morphia is visible in solutions of $\frac{1}{1000}$ alkaloid, while the iodic acid reaction is observed in solutions ten times weaker. The coloration produced with morphia dissolved in 500 to 200 or less water will hide the green color of thalleiochin; but if the solution contains $\frac{1}{1000}$ morphia and only $\frac{1}{3000}$ quinia, the green coloration only will be visible. In a mixture of quinia and morphia, the reactions of either alkaloid with chlorine and ammonia may be produced, depending mainly upon the amount of morphia contained in the solution.—*N. Jahrb. f. Pharm.*, 1872, *March*, 136—143.

Yield of Opium Plantations.—Jul. Schrader planted 32 square rods with poppy, and raised 3749 capsules (117 to the square rod), from which he obtained 9⅜ oz. well dried opium, containing 11 per ct. morphia; each capsule, therefore, yielded 1⅕ grain opium. One (German) acre would yield, accordingly, 112½ oz. opium, the value of

which may be regarded as profit, since the seeds will cover the expenses for labor and manure. To prove that the seeds do not suffer by the preparation of the opium, the author selected 160 scarified and the same number of unscarified capsules, of about uniform size, and obtained from each lot nearly 15 oz. seeds, which yielded in each case almost 6 oz. of fixed oil by warm expression.—*Ibid.*, 163.

*The Asserted Presence of Table Salt in Extract of Meat** is discussed by Prof. Liebig, who refers to his researches published 24 years ago,† when he proved that the meat juice of all animals is rich in potassium, that it contains chloride of potassium, but only traces of chloride of sodium. After the salts of inosic acid have been precipitated by the addition of alcohol, the further addition of about five volumes of alcohol will cause a separation of the liquid into two layers, the lowest of which (about one-twentieth of the upper one) is syrupy, and will yield in the cold prisms of pure chloride of potassium, containing not a trace of chloride of sodium. This is the more remarkable, since the meat juice is not free from sodium, which must be combined with another acid.—*Zeitschr. d. oesterr. Apoth. Ver.*, 1872, *No.* 10.

Distribution of Atropia in the Leaves and Root of Belladonna.—To determine this J. Lefort exhausts 100 grm. of the fine powder with alcohol of 86°, evaporates the alcohol, and adds water to obtain after filtration 50 c.c. solution, to which a slight excess of iodo-hydrargyrate of potassium is added; the precipitate is collected upon a weighed filter, washed, and dried by the aid of hot air. It contains 33·25 atropia.

The leaves were collected from plants cultivated near Paris, in May, before flowering, and in August, when the berries began to ripen. 1000 parts of dry material yielded, by four analyses, in May, 0·418, 0·405, 0·421 and 0·392, and in August, 0·457, 0·443, 0·467 and 0·482 atropia. By assaying leaves from cultivated and wild plants, collected at the same season, the former yielded 0·470 and 0·485, the latter, 0·459 and 0·477 alkaloid. The author concludes, therefore, that the leaves collected from wild and cultivated plants are equally reliable if collected during the season of flowering and fructification.

* Amer. Journ. Pharmacy, 1872, p. 213.
† Annalen der Chemie und Pharmacie, lxii, 257.

The root (when collected?) was found to contain, when 2 to 3 years old, 0·4718 and 0·4886, when 7 to 8 years old, 0·2541 and 0·3126 alkaloid. Belladonna root collected in Germany (Hesse-Darmstadt) yielded 0·492, against 0·478 alkaloid obtained from the French root.

For medicinal use, the author regards the leaves as preferable to the root, they varying less in their strength.—*Journ. de Pharm. et de Chim.*, 1872, *April, May.*

Anhydrous Protoxide of Iron is obtained by G. Tissandier by passing carbonic acid gas over very fine iron wire, rolled up spirally into bundles and heated to a bright redness in a porcelain tube. It is black, shining, of a crystalline aspect, magnetic, unaltered in the air, soluble in muriatic and nitric acids, but insoluble in warm sulphuric acid.—*Ibid.*, 379—381.

Detection of Arsenic and Sulphurous Acid in Hydrochloric Acid.—Hager puts a little hydrochloric acid, diluted, if necessary, with an equal volume of water, in a long test-tube, adds a little pure zinc, and closes the tube with a loosely fitting cock, to which two strips of parchment paper are attached, previously moistened on one side (the outside) with solution of nitrate of silver and of acetate of lead. If arsenious acid is present, the former only will be blackened; if sulphurous acid is likewise present, both papers will turn black in the current of the escaping gas. A second experiment becomes then necessary in a tube similarly arranged. The sulphurous acid is first oxidized by permanganate of potassa until the liquid acquires a yellow or brownish tint, or until a faint smell of chlorine is perceptible. After the addition of zinc, the arseniuretted hydrogen contained in the gas evolved will blacken the silver paper only, without affecting the lead paper.—*Pharmac. Centralhalle*, 1872, *No.* 11.

Oil of Turpentine an Antidote to Phosphorus.—This was first recommended by Personne. H. Köhler and Schimpf confirm his results by experiments with 25 animals. Pure oil of turpentine dissolves phosphorus and separates it unaltered on cooling. But when the oil contains oxygen, a crystalline mass resembling spermaceti is produced, while any excess of phosphorus is rapidly converted into the red modification. The white mass may be purified, by recrystallization from alcohol, has an acid reaction, rapidly softens in contact with air, acquires a terebinthinate odor, and then contains phosphoric acid. This terebintho-phosphorous acid dissolves in alcohol, ether, petroleum-ben-

zinc, benzol and alkalies; it forms with the earths and metallic oxides insoluble salts, the baryta salt having the formula $C_{20}H_{15}PO_2Ba$. Rabbits and dogs bear as much as 0·3 grm. of terebintho-phosphorous acid, in alcoholic solution, without any toxical effect; the urine acquires a camphoraceous odor, and the distillate reduces silver salts.

It has not been ascertained yet whether pure oil of turpentine (free from oxygen) is an antidote to phosphorus.—*Ibid.*, *No.* 16, from *Berl. Klin. Wochenschr.*

Tannin containing Iron has been met with by Dr. H. Hager. It had been mixed with 0·8 per ct. oxalic acid, which prevented the ink color from appearing when dissolved in pure water; when, however, the water contained an alkali, the blue-black coloration was at once produced.—*Ibid.*, *No.* 18.

Preparation of Saffranin.—This dye stuff, which has been used for some time as a substitute for safflower for dyeing cotton and silk, is prepared by heating a mixture of 2 parts nitrite of anilin and 1 part arsenic acid, for 5 minutes, to between 80 and 120° C. The mass is poured into boiling water, and the solution neutralized with chalk, when it acquires a beautiful red color. It is then carefully passed through a woollen filter, and the filtrate precipitated by dissolving table salt in it, when, after some time, saffranin is deposited and may be collected on a filter.

The nitrite of anilin is made by passing washed nitrous acid, obtained from starch and nitric acid, into a mixture of oily anilin, water and salt, the process being completed when the light brown color has changed to a deep chestnut-brown. After washing several times with water, the product is sufficiently pure for the above purpose.—*Ibid.*, from *Musterzeitung.*

NOTE RELATIVE TO THE MONOBROMATED CAMPHOR.

By William A. Hammond, M.D.

Several months since, a statement* was made in *The Doctor* to the effect that a Belgian physician had for more than ten years past made use of the monobromated camphor in delirium tremens and analogous nervous diseases. Desiring to test its value in such affections, I requested Dr. Neergaard to obtain a quantity of the preparation for

* American Journal of Pharmacy, 1872, p. 84.

my experiments. Prof. Maisch, of the Philadelphia College of Pharmacy, very kindly undertook to manufacture it, and, overcoming the great difficulties of the process, succeeded in obtaining it in beautiful crystals free from the slightest yellow tinge.

My experience with the monobromated camphor, though thus far limited, is eminently satisfactory. I have employed it in two cases of infantile convulsions due to the irritation of teething, with the effect in each instance of preventing the further occurrence of paroxysms which, previously to its administration, had been very frequent. In each case a grain was given every hour, rubbed up with a little mucilage of acacia. Three doses were sufficient in one, and two in the other case. The children were aged respectively fifteen and eighteen months.

In a very obstinate case of hysteria occurring in a young married lady, in the form of paroxysms of weeping and laughing, alternating with epileptiform and choreiform convulsions, I gave the monobromated camphor in doses of four grains every hour. The iufluence was distinctly perceived after two doses were taken, but ten were necessary to entirely break up the attack. This was a very favorable result, as all previous seizures had lasted for from five to eleven days, uninfluenced by medication or moral suasion.

I have also employed it with excellent effect in several cases of headache occurring in women and young girls, and due to mental excitement and excessive study. One dose of four grains was generally sufficient to cut short the attack. In two cases, three doses at intervals of half an hour were necessary.

In wakefulness, the result as it so generally is of cerebral hyperæmia, the monobromated camphor appears to be greatly inferior to the bromide of calcium or even the other bromides. But it is apparently indicated in delirium tremens. I have not yet had the opportunity of trying it in this disease, but I should not hesitate in a case of the affection to administer it in doses of five grains every hour or half-hour, with the confident expectation that sedation and sleep would result.

The monobromated camphor may be given in the form of pill, with conserve of roses as the excipient, or as a mixture with mucilage of gum arabic and syrup. The dose for adults ranges from two to five grains.—*New York Medical Journal, May*, 1872.

DISINFECTANTS.

A commission appointed by the French Academy to investigate the relative merits of various disinfectants for use in hospitals where contagious diseases are treated, have made the following report as the result of their experiments:

Hyponitrous Acid.—The members of the commission agree that the first place among agents for attacking and destroying infectious germs must be accorded to *hyponitrous* acid. Extraordinary precautions must, of course, be observed in making use of this dangerous gas; the doors and windows must be carefully sealed with gummed paper when disinfecting a room containing 40 or 50 cubic yards. The materials are taken in the following proportions: 2 quarts of water, 3½ pounds of ordinary commercial nitric acid, and ½ pound of copper turnings or filings. A stoneware vessel is employed, holding two or three gallons. The exit doors are carefully pasted up, and the room left closed for 48 hours. The person opening the room at the expiration of the time should be protected in some way from breathing the gas, by a suitable respirator.

Carbolic Acid.—This is cheaper, more easily used, less dangerous, and has proved equally efficacious. It is best employed mixed with sand or sawdust—one pound of acid to three pounds of an indifferent substance. The mixture, placed in earthen vessels, was used for the same purpose as the hyponitrous acid. Carbolic acid, diluted with 15 or 20 parts by weight of water, was found useful for daily sprinkling of the floor and bed-clothes.

An interesting case is mentioned in the report where neither chlorine nor hypochlorous acid was able to destroy or render odorless the gases given off from the corpses in the Paris Morgue during the heat of summer. The object was attained by dissolving a quart of liquid carbolic acid in 500 gallons of fresh water, contained in the reservoir and used to sprinkle the bodies. Putrefaction was entirely stopped.

Devergie found that water containing only one to four thousand part of its weight of carbolic acid sufficed to disinfect a dead house, even in the hottest weather, when six to eight corpses were in it.

For fumigating linen, mattresses and other bedding with chlorine, Régnault's latest method was used, namely: One pound of chlorinated lime (bleaching powder) is sewn up in a strong bag of sail cloth, holding about a quart, and put in an earthen pot contain-

ing a quart of common muriatic acid (sp. gr. 1·15) and three quarts of water. As soon as the acid comes in contact with the chloride of lime the room is closed, and the things exposed to the action of chlorine gas for 24 hours; the room is then aired for 48 hours. Ten such earthen pots give off 500 litres of chlorine, sufficient to disinfect from 20 to 25, more or less, dirty mattresses.—*Scientific American, May* 18, 1872.

THE TALLOW TREE AND ITS USES.

By D. J. Macgowan, M.D.

The botanical characters of this member of the *Euphorbiaceæ* are too well known to require description; but hitherto no accurate account has been published of its various uses. Although it has become a common tree in some parts of India and America, its value is appreciated only in China, where alone its products are properly elaborated. Analytical chemistry shows animal tallow to consist of two proximate principles—stearine and elaine. Now, what renders the fruit of this tree peculiarly interesting is the fact that both these principles exist in it separately in nearly a pure state. Nor is the tree prized merely for the stearine and elaine it yields, though these products constitute its chief value; its leaves are employed as a black dye; its wood is hard and durable, and may be easily used for the blocks in printing Chinese books and various other articles; and, finally, the refuse of the nut serves for fuel and manure.

The *Stillingia Sebifera* or tallow tree is chiefly cultivated in the provinces of Kiang-se, Kiang-nau and Chih-kiang. In some districts near Hang-chau the inhabitants defray all their taxes with its produce. It grows alike on low alluvial plains and on granite hills, on rich moulds on the margin of canals, and on the sandy sea beach. The sandy estuary of Hang chau yields little else. Some of the trees at this place are known to be several hundred years old, and, though prostrated, still send forth branches and bear fruit. Some are made to fall over rivulets, forming serviceable bridges. They are seldom planted where anything else can conveniently be cultivated, but generally in detached places, corners about houses, roads, canals, fields, etc.

In winter, when the nuts are ripe, they are cut off with the twigs by a sharp bill hook attached to the extremity of a long pole, which

is held in the hand and pushed upwards against the twigs, removing at the same time such as are fruitless.

The harvesting accomplished, the capsules are taken and gently pounded in a mortar to loosen the seeds from their shells, from which they are separated by sifting. To facilitate the separation of the white sebaceous matter enveloping the seeds, they are steamed in tubs having convex, open wicker bottoms, and placed over caldrons of boiling water. When thoroughly heated they are mashed in the mortar and then transferred to bamboo sieves, kept at a uniform temperature over hot ashes.

As a single operation does not suffice to deprive them of all their tallow, the steaming and sifting is therefore repeated. The article thus procured becomes a solid mass on falling through the sieve, and, to purify it, is melted and then formed into cakes for the press. These receive their form from bamboo hoops, a foot in diameter and three inches deep, which are laid on the ground over a little straw. On being filled with the hot liquid, the ends of the straw underneath are drawn up and spread over the top, and, when of sufficient consistence, are placed with their rings in the press. This apparatus, which is of the rudest description, is constructed of two large beams placed horizontally so as to form a trough capable of containing about fifty of the rings, with their sebaceous cakes. At one end it is closed and at the other adapted for receiving wedges, which are successively driven into it by ponderous sledge hammers wielded by athletic men.

The tallow oozes in a melted state into a receptacle where it cools. It is again melted and poured into tubs smeared with mud to prevent adhering. It is now marketable in masses of about eighty pounds each, hard, brittle, white and opaque, tasteless, and without the odor of animal tallow. Under high pressure it scarcely stains bibulous paper; it melts at 104° Fah. It may be regarded as nearly pure stearine; the slight difference is doubtless owing to the admixture of oil expressed from the seed in the process just described. The seeds yield about eight per cent. of tallow, which sells for about five cents per pound.

The process for pressing the oil, which is carried on at the same time, remains to be noticed. It is contained in the kernel of the nut; the sebaceous matter which lies between the shell and the husk having been removed in the manner described, the kernel and the husk covering it are ground between two stones, which are heated to prevent

clogging from the sebaceous matter still adhering. The mass is then placed in a winnowing machine precisely like those in use in western countries. The chaff being separated, the white oleaginous kernels are exposed, and, after being steamed, are placed in a mill to be mashed.

This machine is formed of a circular stone groove twelve feet in diameter, tapering at the edge, and is made to revolve perpendicularly by an ox harnessed to the outer end of its axle, the receiver turning in a pivot in the centre of the machine. Under this ponderous weight the seeds are reduced to a mealy state, steamed in tubs, formed into cakes and pressed by wedges in the manner before described, the process of mashing, steaming and pressing being likewise repeated with the kernels.

The kernels yield about thirty per cent of oil. It is called *tsing-yu*, and sells for about three cents per pound. It answers well for lamps, though inferior for this purpose to some other vegetable oils in use. It is also employed for various purposes in the arts, and has a place in the Chinese pharmacopœia because of its quality of changing gray hair to black, and other imaginary virtues. The husk which envelopes the kernels and the shell which encloses them, and their sebaceous covering, are used to feed the furnaces; scarcely any other fuel is necessary for this purpose. The residuary tallow cakes are also employed for fuel; a small quantity of it remains ignited a whole day. It is in great demand for chafing dishes during the cold season.

Finally, the cakes which remain after the oil has been pressed out are much valued as a manure, particularly for tobacco fields, the soil of which is rapidly impoverished by that plant.—*Scientific American, May 4th*, 1872.

CRYSTALLIZED DIGITALINE.*

By M. Nativelle.

The process adopted by the author for obtaining crystallized digitaline, a magnificent specimen of which accompanied the memoir, consists, in the first place, in exhausting the digitalis in 50† alcohol, in-

* Extracted from the Report by M. Buignet, on behalf of the Commission, recommending the award of the Orfila prize (6000 francs) to the Author.

† The British Pharmacopœia orders rectified spirit.

stead of water, as ordered in the French Codex. He found that while the product obtained by an aqueous maceration contained chiefly an amorphous principle, soluble in all proportions in water, which he proposed to call digitaleine, the residue, usually rejected as useless and completely exhausted, contained nearly all the active crystallizable principle, together with another very bitter principle, approaching it in its properties, but not crystallizable. The alcoholic tincture so prepared was distilled, and the residue of the distillation concentrated to a weight equal to that of the digitalis originally used. Here the author introduces a modification based upon what is generally observed where several principles exist simultaneously in the same plant, that these exercise towards each other a particular influence, which determines or favors their reciprocal solution in the same liquid. This faculty, however, is manifested chiefly in a concentrated solution, being weakened or completely annulled when the solution is diluted. Thus, a concentrated solution of opium may contain, not only the principles dissolved directly by the water, but also more or less resin carried into solution by the influence of those principles, and which separates when the solution is diluted by a certain proportion of water. So with digitalis, in the concentrated solution that represents the product of evaporation after the alcohol is driven off, is found in solution, not only the principles directly soluble in water, like digitaleine, but other principles, such as digitaline and digitine, which, insoluble in themselves, are kept in solution by the influence of the preceding in a concentrated solution. If, however, this solution be diluted by three times its weight of water, a gradually augmenting viscous deposit is formed, which represents nearly the whole of the digitaline, accompanied, it is true, by digitine and coloring matter, but freed from the digitaleine and other soluble principles—according to the author the chief obstacles to crystallization.

In order to extract from the viscous deposit the two crystallizable principles that it contains, it is to be dried in the open air, upon folds of filtering paper, and afterwards treated with twice its weight of boiling proof spirit. The filtered solution, left in a cool place, is quickly covered on the surface with crystals, which also form on the side of the vessel. This goes on for eight or nine days before the liquor is completely exhausted. The crystals are then separated, and after washing with weak alcohol are nearly completely colorless. The digitaline is then separated from the digitine by successive treatment of

the crystals with chloroform, evaporating the chloroform, treating the deposit with eight times its weight of boiling 90 per cent. alcohol, adding a little washed animal charcoal, filtering and leaving to cool in a partially stoppered flask. The pure digitaline is then deposited in fine white and shining needles, grouped around the same axis. By this means, the two principles are effectually separated. The part dissolved is intensely bitter, giving a wonderfully intense emerald green coloration with hydrochloric acid, and having such a powerful physiological action that a quarter of a milligram is sufficient to produce the ordinary effects of digitalis. On the contrary, the part undissolved by the chloroform is tasteless, giving no coloration with hydrochloric acid, and exercises no appreciable action upon the organism.

In order to verify the results described in the memoir, the commission followed the process step by step, and succeeded in obtaining a product identical with the specimen accompanying the memoir. They also undertook a series of physiological experiments, the result of which led them to the conclusion that the new medicament appeared to produce effects identical with the other preparations of digitalis, particularly the digitaline of MM. Homolle and Quevenne, but incomparably more energetic, while, from the definite nature of the compound, more constant results follow its use.—*Pharm. Journ., Lond., April* 27, 1872.

CHLORALUM AND PREPARATIONS OF CHLORALUM AS DISINFECTANTS.

By Prof. A. Fleck.

The Central Chemical Institution, established last year in Dresden for the protection of the public health, of which Prof. Fleck is the director, received, amongst other things, the disinfectants introduced by the Chloralum Company in London, in order that a thorough investigation of the composition and real value of these products might be made. The ostentation with which the Chloralum Company commenced, and still carries on, its operations, points either to the especial excellence of the disinfectants recommended, or to a great mistake. The suspicion against the Chloralum Company in this last respect was augmented by many external appearances which accompanied the undertaking. Those newspapers and journals of Ger-

many, which enjoy the greatest circulation, have become the debating forum of the Chloralum Company, so that it seems to be high time that an impartial judge, such as the Central Chemical Institution, founded, as it is, under the auspices of the State, should pronounce unreserved judgment on the Chloralum Industry and its products.

The Chloralum Company recommends—1. Chloralum as the safest disinfectant, as free from smell, and not poisonous; and as adapted for the disinfection of urinals and drains, stables, slaughterhouses, street kennels, and horse dung, for internal and external use in affections of the throat, diphtheria, scarlet fever, small-pox, &c.

As Prof. Fleck states in the 2d, 1871, No. 4, the liquid contents of a clean labelled vessel weighing 637·9, half a litre in volume, and 15 sgr. (1s. 6d.) in price, were used for the chemical investigation. This fluid contains:

82·32	per cent.	water.
0·15	"	chloride of lead.
0·10	"	chloride of copper.
13·90	"	chloride of aluminium.
0·42	"	chloride of iron.
3·11	"	chloride of calcium with gypsum.
100·00	"	

2. Chloralum powder is recommended as an absorbent of organic impurities, as an antiseptic and astringent when combined with wheaten flour, and as a disinfectant for railway carriages, ships, privies, stables, drains, &c.

A tin canister, also very handsomely labelled, containing a white powder of 370 gr. in weight, and 5 sgr. (6d.) in price, was taken to experiment upon. It contained—

0·72	per cent.	chloride of arsenic.
0·55	"	chloride of lead.
0·37	"	chloride of copper.
52·43	"	chloride of aluminium.
1·55	"	chloride of iron.
11·51	"	chloride of calcium.
0·72	"	gypsum.
32·15	"	alumina and silicious earth.
100·00		

3. Chloralum wool and wadding recommended as a styptic and antiseptic for fresh or suppurating wounds and cancerous tumors, also as a disinfectant for coffins and corpses. A neatly labelled bag, of waterproof material, containing 352 gr. of dried wadding, which had been soaked in 173 g. solid chloralum, or 9·80 g. fluid chloralum, price 20 sgr. (2s.) was taken for experimenting upon.

These analytical results leave no doubt as to the nature and the mode of making the preparations of chloralum, and as to their real value.

The manufacture is as follows: An alumina containing lime (limy clay) and a small proportion of iron is steeped in ordinary strong muriatic acid, and dissolved as far as possible. The concentrated fluid, cleared from the alumina that remains undissolved, is drawn off and sold in bottles as *Chloralum* (the name is to be ascribed to its containing chloride of aluminium). The sediment remaining is evaporated, together with the fluid remaining in it, and then dried; this yields the *Chloralum powder*. Cotton or wadding is dipped into the chloralum itself, saturated with it, pressed out, dried, and becomes *Chloralum wool and wadding.*

The arsenic, lead and copper contained in the preparations are to be ascribed to the impurity of the solvent employed, muriatic acid, and to the apparatus in which the alumina is dissolved.

The real value of the contents of a bottle of chloralum, which is sold at 15 sgr. (1s. 6d.), is not to be computed as above 2 sgr. (rather more than two pence). The value of the chloralum powder, which is sold in tin canisters at 5 sgr. (6d.), cannot be placed higher than 1 sgr (rather more than 1 d.), seeing that it is but dried sediment. The chloralum wadding, which is sold for 20 sgr. (2s.) is only worth ½ sgr. (rather more than a half-penny), at the utmost. A solution of 10 g. of sulphate of alumina in 1 lb. of spring water would be a perfect substitute for the above preparations, all the component parts of which, excepting the chloride of aluminium, are to be regarded as impurities or poisons, and this solution would not exceed 1 sgr. in value (rather more than one penny).

To test the value of chloralum as a disinfectant similar quantities of sewage were treated with chloride of lime, alum, green vitriol, chloralum, quicklime and chloride of magnesium, and the clarified solution was tested for its contents of organic impurities (putridity), by means of an alkaline solution of silver. The effective value of

this disinfectant and purifier may be gathered from the following. figures:

Chloride of lime.	Disinfectant.	100·0	per ct.	organic matter
Quicklime.	"	84·6	"	"
Alum.	"	80·4	"	"
Green vitriol.	"	76·7	"	"
Chloralum.	"	74·0	"	"
Chloride of magnesium.	"	57·4	"	"

Thus the disinfecting and purifying powers of chloralum stand below those of alum, or sulphate of alumina and copperas (protosulphate of iron), which further recommend themselves by their much greater cheapness.

To sum up the argument concerning the value and composition of the preparation of chloralum: 1. The preparations of chloralum have nothing in common with the similarly sounding chloral hydrate, and are, in point of fact, mixtures of chloride of aluminium. 2. The preparations of chloralum contain chlorine combinations of lead, copper and arsenic, which renders their employment not free from danger, and which would render their employment as a medicine or as an astringent for open or suppurating wounds dangerous. 3. The price of the preparations of chloralum bears no relation either to their nature or their effect. Considering that the liquid chloralum yields a clear profit of at least 700 per cent., and the wadding 400 per cent., the limits of honest trading may be considered as overstepped. 4. The result of these experiments is that chloralum and the preparations made from the same must be classed amongst the worthless arcana, and in the interest of the public health, as well as in the material interests of the public, a most decided warning must be given against the purchase of the same.—*Chemical Review, Lond., March*, 1872, from *Industrie Zeitung.*

ANALYSIS OF COMMERCIAL SAMPLES OF IODINE.

By Prof. J. A. Wanklyn.

Owing to the high price of iodine and its numerons applications in the chemical arts, its analysis is very important, and at the same time frequently very difficult.

The process is to dissolve a known weight of the sample in a solution of sulphurous acid, and to precipitate the iodine by means of a

solution of the nitrate of silver in presence of an excess of ammonia to keep chloride of silver from being thrown down. All this is exceedingly simple in theory, but it requires a number of minute precautions for its successful execution.

1. *Weighing.*—Iodine cannot be weighed in an open capsule, since it evaporates so rapidly that the loss of weight would be appreciable. A quantity is therefore placed in a small tube closed at one end and capable of being stoppered with a cork at the other. This is then carefully weighed. The tube is then rapidly opened, and a portion of the contents shaken into the solution of sulphurous acid. The cork is then quickly re-inserted and the tube re-weighed. The difference between the first and second weighing shows the quantity of the sample actually taken for analysis.

2. *Determination.*—Prepare beforehand a large glass capable of holding a litre. Pour into it 40 cubic centimetres of a solution of sulphurous acid, concentrated and recently prepared. When the iodine has been thrown in, it is stirred with a glass rod till entirely dissolved. Should there remain an appreciable residue of insoluble matter, it becomes needful to filcer the solution. This is performed by means of a funnel fitting into a flat-bottomed phial. The funnel should be covered with a plate of glass during this process, which, however, is not generally necessary. Pour into the glass at least half a litre of boiling distilled water. Then add ammonia in excess, and lastly a solution of the nitrate of silver. Iodide of silver is formed, and falls down as a yellowish precipitate, whilst chloride of silver remains in solution. The precipitate, on stirring, collects at the bottom of the glass when the liquid is hot enough. The beaker is then covered over with a plate of glass and set aside for half an hour. The precipitate is then washed by decantation, with abundance of hot water, the liquid being allowed to pass through a small filter of the best Swedish paper, without folds. It is then thrown upon the filter, and collected as far as possible at the bottom. When the precipitate is perfectly washed, *i. e.*, when a drop of the liquid, on being tested with hydrochloric acid, is found to contain no silver, the filter is taken out of the funnel and carefully dried at 110° C. Before weighing it is necessary to fuse the precipitate, but it is also necessary to avoid heating it in contact with the carbon of the filter, which might reduce an appreciable quantity of silver. When the filter, therefore, is dry, it is laid on a sheet of glazed paper, the precipitate of iodide of silver

is detached with a small platinum spatula, and the paper carefully scraped. Still a little iodide of silver remains on the lower part of the filter. This portion is cut out with scissors, and ignited in a small porcelain capsule of about 12 millimetres diameter, the weight of which must previously be carefully determined. When the filter is burnt and the ash is perfectly white, the iodide of silver is thrown into the capsule and heated till it begins to fuse. It is then cooled and weighed. The excess of weight gives the iodide of silver, of which 54 per cent. is iodine.

Determination of Chlorine.—The mother liquor, decanted from the iodide of silver, contains all the chlorine held in solution by the ammonia. It is mixed with pure nitric acid in excess, filtered and weighed in the usual manner.

Ash.—Weigh out about five grammes of the sample of iodine by means of the tube, as described above. Put it in a small porcelain capsule and volatilize it by exposure to a moderate heat. The residue is then weighed. It is generally very small, and consists of silica, alumina and traces of alkaline chlorides.

Moisture.—This may amount to 20 per cent., and even upwards. It is generally determined as difference, as the moisture cannot be driven off by heat without at the same time volatilizing the iodine also. The following method may be adopted, which, though not absolutely accurate, is useful as a check. Weigh out 1 gramme of the iodine, and put it in a glass tube of narrow bore, graduated to tenths of cubic centimetres. Pour into the tube 20 cubic centimetres of the bisulphide of carbon, which will of course occupy 200 of the divisions. Shake the tube until all the iodine is dissolved, keeping the aperture closed with the finger. Then let it stand two or three hours, well corked. The water present in the sample separates out and floats above the bisulphide of carbon as a slightly yellow liquid. If it occupies the space between two divisions of the tube it is 1–10 of a cubic centimetre in bulk, and weighs consequently 1 decigramme. The iodine therefore in this case, if exactly 1 gramme was operated upon, contains 10 per cent. of water. A fair average sample of commercial iodine contains about:—

Iodine,	88·61
Chlorine,	0·52
Ash,	0·72
Water,	10·15
	100·00

An inferior sample, on the other hand, may contain:—

Iodine,	76·21
Chlorine,	0·88
Ash	1·11
Water,	21·80
	100·00

—*American Chemist, April,* 1872, *from Mech. Mag.*

PREPARATION OF A VERY ACTIVE CANTHARIDAL PLASTER.

By Professor Dr. G. Dragendorff.

Apothecaries frequently complain that some cantharides do not furnish an active blistering plaster; that the same furnish, even when treated with acetic ether, an extract so poor in cantharidin, that with its aid no good Drouott's blistering tissue can be produced. In most cases the opinion is expressed that the flies contain too small a percentage of cantharidin. My experience teaches me to discredit the latter opinion. It is possible to obtain good preparations even from such apparently poor cantharides, it being only necessary to thoroughly extract the cantharidin they contain.

A few observations show how poorly this is commonly accomplished. According to my experience the amount of cantharidin in Spanish flies varies from 0·27 to 0·5 per cent. The coating of a vesicating tissue 20 c. m. long and twelve wide requires about 25 grm. plaster substance, containing usually about 6 grm. powdered Spanish flies, furnishing at least 0·016 cantharidin. 0·00002 grm. cantharidin suffice for a blistering surface of a square centimetre, or 0·0048 grm. for 240 square centimetres, or less than one-third of the smallest quantity that may be considered present in the plaster. Mechanical causes may partly be found to be the ones that prevent a thorough action of the plaster. A plaster of poor adhesiveness, not being in close contact with the epidermis, does not act because that close contact is wanting, which is necessary for the absorption of the cantharidin. It is also a mistake of several pharmacopœias to permit the use of coarsely-powdered cantharides, the quantity of cantharidin in which is not uniformly distributed in the plaster, even if the powder is heated for a long time with the oil.

Other causes, unnoticed heretofore, also weigh heavily in this direction. The cantharidin is present in the Spanish flies in several

different combinations, in which it is firmly held. This we may see, as mentioned already in my "Contributions to Toxicological Chemistry," in the difficult behavior of flies towards various solvents. Cantharides with about 0·3 per cent. of cantharidin yield to water, even after repeated boiling with fresh portions of the same, only about half of their cantharidin, while the remainder is only yielded to potassa lye. In the same manner, alcohol, chloroform, and ether, dissolve only 30 per cent. of the blistering substance. If all the cantharidin is to be extracted, bases like potassa or soda must be employed, which form easily soluble salts with the cantharidin. Together with Masing, I demonstrated years ago that the salts thus formed are energetic blistering agents. During the past two years, reference has occasionally been made to our observation, especially by Delpech and Guichard, recommending the cantharidates of soda and potassa as vesicants.

Without alluding to this further, I would say that by the aid of soda or potassa the entire amount of cantharidin contained in the flies may be rendered active. The finely-powdered flies are mixed to a paste with diluted alkaline lye of about 1·1 sp. gr., heated in water bath for 25 to 30 minutes, when sufficient muriatic acid is added, to have a trifling surplus of the same, and the whole mass is dried rapidly in the water-bath. The residue, which we may call "prepared cantharides," is powdered anew and employed for the preparation of the plaster, or for the extract with acetic ether for use upon tissue. The small quantity of potassium or sodium chloride present, is in no case injurious. The cantharidin is now present in the mixture in a free state. In a drug store in this city, where my proposition has been followed, no complaints have been made about the preparation.

Even for the preparation of the pure catharidin, the above mentioned process is worthy of attention. As I mentioned before, ether, alcohol, etc., dissolve from the cantharides, not "prepared," only a fraction of the cantharidin present.—*Pharmacist and Chemical Record, April*, 1872.

Varieties.

Cundurango by its Friends.—Through the kindness of Dr. John S. Perkins, of this city, we have been put in possession of some very interesting letters from persons whose names appear on Bliss, Keene & Co's certificates. The letters (five in number) do not seem to be very commendatory of the drug. Two of them from medical men deny ever giving any testimonials of its virtue

whatever. Vice-President Colfax says he always declines to sign certificates of any kind, but says that a *private* letter of his once got into print and was extensively published. The remaining two from persons outside of the profession do not give evidence of any remarkable cures. In fact both state that in the cases observed by them *no cure has been effected*, but they *think some* benefit has been derived from the use of Cundurango. The proprietors of Cundurango seem to have followed in the steps of all quack medicine venders, and secured certificates no matter by what means. One of the physicians alluded to, Dr. Fitch, of Chicago, says: "I have never authorized the use of my name in the connection you speak of (Cundurango), and from this fact alone I am satisfied that the whole thing is a money making scheme and I may say a humbug."—*Buffalo Medical and Surgical Journal, April*, 1872.

New Use for Paraffin.—Dr. Vohl announces that, mixed with benzole or Canada balsam, paraffin affords a much superior glazing for frescoes than soluble glass. By covering the interior of wine casks with a film of pure white paraffin poured in melted, he has effectually prevented the spoiling of wine, or its evaporation through the wood.—*Journal Franklin Institute, Feb.*, 1872.

Value of Salt.—This substance is remarkable as constituting the only mineral eaten by man. Not only does it afford an indispensable and wholesome condiment for our tables, but it forms an essential constituent of the blood, and supplies to the human system the loss sustained by saline secretions. Its antiseptic properties are invaluable; but although it preserves, it ultimately changes and deteriorates the quality of the food to which it is applied, rendering the same innutritious and indigestible; for salt, notwithstanding its being a strong stimulant to the animal fibre, is not convertible into nutriment. This is the cause why sailors who subsist long upon salted provisions are subject to the sea-scurvy. Its medicinal qualities are also remarkable. While all other saline preparations tend to cool, this but heats the body, and engenders thirst. Some years ago a medical man wrote a *brochure* in which he condemned the use of salt, attributing to it all the diseases to which flesh is heir. The poor fellow eventually committed suicide. Only lately a book has appeared in which the writer, who is a physician, recommends salt as a sure antidote to the contagion of small-pox. Doctors will of course disagree; but as *Variola* is acknowledged to arise from a diseased or poisoned condition of the blood, the due use of salt may possibly form a safe and effective specific. Salt is not only an agreeable condiment, but also an indispensable requisite. When moderately used it acts as a gentle stimulant to the stomach, and gives a piquancy and relish to our food. In Africa the high caste children suck rock-salt as if it were sugar, although the poorer classes of natives cannot so indulge their palates. Hence the expression in vogue among them, "He eats salt with his victuals," signifying that the person alluded to is an opulent man. In those countries where mineral salt is not procurable, and where the inhabitants are far removed from the sea, a kind of saline powder is prepared from certain vegetable products to serve in its stead. Indeed, so highly is salt valued in some places—such as Prester John's country—that from its very scarcity it is employed as a substitute for money.—*Good Health, February*, 1872, *from Food Journal*

Meat Extracts.—Dr. P. Müller, in an essay on meat extracts, considers that they are neither directly nor indirectly food, for they do not contain albuminoid matter, neither do the nitrogenous principles which they contain arrest disassimilation, that is, they do not prevent the waste of the organic matter which composes the body. In small doses, these extracts are useful by the stimulant action of the potassa salts, which promote digestion and circulation; in strong doses—too large quantity at once—these substances may have a very injurious effect. Medical men should bear in mind that, if given alone, these extracts (and the same applies to beef tea) are no nutriment, and only tend to keep the convalescents weak and not only ill fed, but not at all fed.—*Good Health, April,* 1872.

Extemporaneous Ink.—The following recipe will give black ink of good color and permanency:—Take of tannic and gallic acids each 20 grains, dissolve in 2 fluid ounces of water, take also of crystallized sulphate of iron and of the dried sulphate (*sulphas ferri exsiccatum*), of each 15 grains, and dissolve these separately in a similar quantity of water (best distilled); mix the two solutions and add of mucilage (*mucilago gummi arabici*) 2½ fluid drachms, of oil of cloves 2 drops. Although this ink is by no means cheap, it is preferable to every other, and is a very fine black and quite permanent.—*Chem. News, Jan.* 26, 1872.

Effect of Severe Cold upon Cast-iron.—H. Cock.—The author relates that the cast-iron framework of a 12-horse horizontal high pressure steam engine, employed at the printing-works of MM. Renou and Maulde (Paris), after having been exposed for some hours to a temperature of —°15 during the night of December 8 to 9 last, suddenly snapped to pieces in three different places when the engine driver attempted to start the engine very cautiously and at a slow speed on the morning of December 9 last.—*Chemical News, Jan.* 26, 1872, *from Les Mondes, Jan.* 11, 1872.

Decomposition of the Soluble Sulphurets by Water.—Dr. H. Kolbe.—The eminent *savant* first refers at length to the extensive thermo chemical researches of Thomsen, and then describes a series of researches made with the view of elucidating, under varying conditions, the behavior of the soluble sulphurets with water. The chief result of the author's researches is that when the soluble sulphurets become dissolved in water they undergo a partial decomposition, due to the fact that the metals of these sulphurets have an equally strong affinity for the oxygen of the water as for the sulphur, and, as a consequence thereof, these sulphurets (as mono-sulphurets) undergo a partial decomposition into sulphydrate of the metal and hydrated oxide of the metal when only a small quantity of water is present, but with a large quantity of water this decomposition will proceed further.—*Chem. News, Jan.* 26, 1872, *from Journ. f. Prakt. Chem.*, 1871, *No.* 19.

Poisonous Effects of Zinc Utensils.—The *Union Medical* calls attention to a new source of danger, caused by the substitution of zinc for tin in the manu-

facture of pots and pans by travelling tinmen. Zinc sheet can be had at seventy centimes the kilogramme, while tin costs three or four francs, so that it is often substituted in the making of kitchen utensils. The fraud cannot be detected by the eye, but a little vinegar boiled in the vessel will immediately corrode the surface and, if done in the process of cookery, will give rise to symptoms of poison.—*Med. Press and Circular. Jan.* 10, 1872.

Preparation of Pure Metallic Silver.—Dr. Gräger.—The author dissolves the alloy of silver in nitric acid, taking care to use as small a quantity as possible; the solution is then transferred to a larged-sized porcelain basin, and gradually neutralized with previously lixiviated chalk free from chlorine. The neutralized liquid is next boiled, and chalk again added to it, while boiling, until the fluid has become colorless (in order to test more accurately, a drop of the liquid is poured on a piece of white filtering paper, and next to that drop is placed one of a solution of ferrocyanide of potassium; as long as the well-known red coloration, copper reaction, hereby ensues, chalk is added). The fluid is next filtered, to separate the carbonate of copper, and the filtrate (a solution of nitrate of silver and nitrate of lime) is again boiled, and either further treated with carbonate of lime or, better still, with carbonate of soda; the bright yellow colored precipitate thereby ensuing, a mixture of carbonate of silver and carbonate of lime, is washed, dried and ignited, leaving a greyish white mass of metallic silver mixed with carbonate of lime; this mixture is treated with dilute hydrochloric acid, washed with distilled water, and then fused along with borax, yielding pure silver. The bright green-colored carbonate of copper can be used as a pigment for painting purposes.—*Chem. News, March* 8, 1872, *from Dingler's Polyt. Journ., Jan.*

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*Observations Bearing upon M. Boussingault's Communication on a Saccharine Substance met with on the Leaves of a Lime Tree.**—Dr. P. Harting.—The author first briefly refers to the communication just named, and then relates that some years ago he had an opportunity to observe a similar phenomenon in his garden at Utrecht (Kingdom of the Netherlands); in this instance the author found along with the saccharine excretion a number of insects, *Aphis tiliæ*, on the tree, and some of these insects were seen quite filled with the saccharine juice, which, on being submitted to chemical analysis, was found to consist essentially of cane sugar. The reading of this paper, wherein the author states that, in his opinion, the secretion of this saccharine juice is due to the punctures made by the insects alluded to in the leaves of the lime tree, gave rise—First, to an observation of M. Boussingault, who says that Dr. Harting's opinion just alluded to is that generally accepted, but did not hold good in the instance referred to by him; he also states that the leaves of lime trees contain a rather large amount of cane sugar. Secondly, Colonel Follie states that the phenomenon alluded to is every year observed on the lime trees planted on the Esplanada at Metz, the abnormal secretion of saccharine matter being so strong that drops of it are continually falling from the trees, which lose heir foliage very early in autumn.—*Chem. News, March* 8, 1872, *from Compt. rend., Feb.* 12.

*See American Journal of Pharmacy, 1872, p. 211.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held May 20th, 1872, President in the chair.

An interesting feature of the meeting was the presence of Samuel F. Troth, on the 50th anniversary of his election to membership to the College. On behalf of some of his friends, the Chairman on this occasion presented him with a copy of the last edition of the United States Dispensatory, and Dr. Jos. Thomas' Biographical Dictionary, in two volumes, as a testimonial to his long and untiring devotion to the interests of the College. On the title-page was the following inscription:

1822—1872. Presented to Saml. F. Troth by a number of his fellow-members of the Philadelphia College of Pharmacy, as a testimonial of their esteem and appreciation of the valuable services rendered by him to the institution during the past half century.

Friend Troth exhibited his original certificate of membership, in a good state of preservation, and, in acknowledgement of the gift, stated that he had served the College to the best of his ability for 45 years; during the last five years, from impaired health, he had been obliged to retire from active service.

Mr. Bullock exhibited the result of drying a film of gelatine on a sheet of glass; in contracting it was found to raise a film of the glass with it. Mr. Procter had noticed this in a test-tube with glue, though not on so extended a scale.

Prof. Maisch presented to the College a number of specimens of cundurango, sent through Dr. Ruschenberger, U. S. N., by Dr. J. M. Foltz, Surgeon General U. S. Navy, for the College cabinet. They were collected in the province of Loja, Ecuador, by Passed Assistant Surgeon Joseph G. Ayres, of the Navy, by official direction, and forwarded with a report to the bureau of medicine and surgery in the Navy Department; a description of the several specimens has been prepared and will probably be published. The specimens comprise pieces of stems, fruit, &c., of the following seven varieties: Cundurango de tumbo grande, de Tumbo chico (Bejuco Pachón), de Paloma, de Platano, de cascarilla, Saragosa and blanco. Prof. Procter raised the question whether cundurango was the same as guaco, which has been sold in European markets as cundurango, and whether any authentic case of cure from the use of this remedy is known. Prof. Maisch stated that he had never seen guaco sold as cundurango in our market, nor had he read of the cure of a case of cancer in any of the medical or pharmaceutical journals, and stated that none of the physicians whose names were mentioned in connection with its successful use when first introduced now claimed anything for it; some publicly declare they had nothing to do with the publication of their names as recommending it. (See page 274.)

Mr. Bullock proposed a vote of thanks to Dr. Foltz for his valuable donation, and the Registrar was directed to forward to him through Dr. Ruschenberger this expression of the meeting.

Mr. Remington spoke of an adulteration of iodine which recently came under his notice. Upon examination this sample was found to contain about 25 per cent. of sawdust. Mr. R. stated that the adulteration was very easily detected by close examination, or by one accustomed to handling the article. It was

suggested by members that the sawdust may have become mixed with the iodine through breakage. the iodine having been packed in it for transportation. The adulterant seems almost the last that would suggest itself, on account of its lightness. The result of further investigation will be interesting to the profession at large.

Prof. Maisch exhibited a fine sample of round cardamom (*Ammomum cardamomum*), very rare in this market.

The Professor also exhibited crabs' eyes, which were enclosed in a small bag in an original package of cantharides. The question arose as to the cause of this, and as crabs' eyes are thought to be about as expensive as cantharides it is doubtful whether this can be called an intentional fraud.

A curious specimen of colchicum was also shown, cut in transverse slices, externally white, internally quite dark in color.

The Professor also exhibited to the College a fine sample of Chinese blistering fly (*Mylabris Cichorii*), said to contain one-third more cantharidin than Spanish fly of European commerce. These flies differ from the *Cantharis Vesicatoria* in some particulars, and are devoid of the peculiar green lustre on the wings. Some discussion ensued as to the principle, cantharidin, and its development in the fly, as being connected with the genital organs of the female fly, and being present only at a certain stage in its life. The Chinese fly is imported into the London market at about half the price of the officinal fly.

Prof. Procter spoke of *Cantharis atrata*, which is not a Mylabris, and which he has had for some time.

This being the last meeting until the autumn, Prof. Maisch mentioned that the British and North British Societies had also held their last pharmaceutical meeting of the season. After pleasant conversation, the meeting adjourned, to meet on the third Tuesday in October.

CLEMMONS PARRISH, *Registrar.*

Pharmaceutical Colleges and Associations.

THE MASSACHUSETTS COLLEGE OF PHARMACY held the commencement of its Sixth Session, at Horticultural Hall, May 22d, when the following gentlemen received the degree of Graduate in Pharmacy: Edward C. Boyden (*Assays of Ten Samples of Syrup of Iodide of Iron*). John D. Knowlton (*Black Pepper, with Assays of Commercial Samples*), Edgar L. Patch (*Pill and Powder Making*). Charles E. Tappan (*Examination of Commercial Ginger and its Powder*). James T. Wright (*Cream of Tartar and its Adulterations*), Nahum Washburn, Jr. (*Assays of Ten Samples of Commercial Compound Tincture of Cinchona*). The valedictory address was delivered by Professor James F. Babcock.

THE NEW YORK COLLEGE OF PHARMACY has instituted a course in botany, under the superintendence of Mr. P. V. Le Roy, Secretary of the Torrey Botanical Club. The excursions take place every two weeks.

Wm. Manlius Smith, Ph. D., has been selected to fill the chair of Practical Pharmacy, made vacant by the resignation of Dr. E. R. Squibb.

Maryland College of Pharmacy.—At the meeting held May 9th the Committee on Unofficinal Formulas was ordered to report at the next monthly meeting. Great anxiety was expressed for the publication of this report, the former edition (now out of print) having served an excellent purpose in arranging and rendering uniform the numerous local formulas used in Baltimore.

Mr. Wm. S. Thompson read an essay on the practice of pharmacy fifty years ago, comparing it with that of the present day, and giving many practical hints and numerous suggestions. The paper will come up for discussion at the next meeting.

Mr. J. F. Hancock exhibited various medicated waters, among them the distilled waters of peach leaves, orange peel, mint, &c. He contended that distilled medicated waters are generally superior to those made from the volatile oils with magnesia; if prepared with the oils these should be agitated with warm distilled water in preference to using magnesia. Thus made, medicated waters possess a fine flavor, are transparent and quite suitable for solvents. The subject elicited an animated discussion.

Pharmaceutical Society of Great Britain.—The last pharmaceutical meeting of the season was held May 1st, the President in the chair. Among the donations made to the library and museum were specimens of Ki-temboga or copper-tree bark, from *Memecylon grandis*, *Melastomaceæ*, a native of Java, possessing astringent properties and, according to Dr. De Vrij, probably useful in tanning; the popular name is derived from the copper color of the bark. Also the essential oil of *Gaultheria punctata*,* of *Chavica* (*Piper*) *betle*, and of *Eucalyptus globulus*, the oils of the pericarp and of the kernel of the cashew nut, &c.

Dr. Tilden stated that he had found the specimen of so-called crystallized bisulphite of magnesia, about which a paper had been read by Mr. Archbold, to be the ordinary sulphite containing six molecules of water of crystallization. He thought it highly improbable that any such compound could be produced in the solid form.

Mr. Williams stated that bisulphite of lime, being soluble in water, may be used as a test to determine whether salts are sulphites or bisulphites. A solution of chloride of calcium is added to the solution of the bisulphite to be tested; if a precipitate occurs (which may be sulphite, sulphate or carbonate), the whole is thrown on a filter, and the filtrate precipitated by lime water, which neutralizes the excess of sulphurous acid, and from the amount of sulphite thus produced, the percentage of bisulphite originally present in the sample can be easily calculated.

Mr. Greenish then read a paper entitled "Pharmacy in Austria." An animated discussion followed the reading of this sketch, in which the present condition and future prospects of German and Austrian pharmacy were compared with those of Great Britain.

The North British Branch of the Pharmaceutical Society held its fifth

* See Amer. Journal of Pharmacy, 1872, p. 72.

and last scientific meeting for the season on Thursday, April 18th, Mr. Baildon, President, in the chair.

Mr. John Gibson read a paper, illustrated by specimens and drawings, on "The Natural History and Commerce of Sponges."

Messrs. McFarlane and Co., of Edinburgh, presented to the museum several specimens of various kinds of sponges, adhering to pieces of rock, which had recently been procured from Smyrna.

The President then delivered his valedictory address.

At the annual meeting held April 19th Mr. H. C. Baildon was elected President, and Mr. Wm. Gilmour Vice-President. After the election of the Council and other officers, Mr. Mackay was requested to continue to act as honorary Secretary. The meeting then adjourned.

Pharmaceutical Society of Paris.—At the meeting held March 6th, Mr. Stan. Martin presiding, Mr. Boudet reported on the transactions of the Académie de Médicine. The subject of tannate of quinia occasioned some discussion. Mr. Roucher regards it as possessing rather less activity than the sulphate, but to possess certain advantages in special cases. Mr. Regnault stated that by precipitating acetate of quinia with tannin, a turbid liquid is obtained which will pass through the filters, so that it is impossible to wash the newly formed compound, which is very soluble in acetic acid, and which separates completely on the addition of a little sulphuric acid or even of sulphate of soda. The tannate of quinia, freed from sulphuric acid, is nearly insoluble in water, but soluble in alcohol. The speaker also believes that the morphia in wine of opium is not precipitated by the little tannin contained in the cinnamon and cloves, as believed by Mr. Delioux de Savignac, for which reason he had proposed to substitute these aromatics by sugar, also to replace opium by its extract. (See, also, below, the account of the meeting of the Pharmaceutical Society of Antwerp).

Mr. Limousin read a paper on sulphovinate of soda, describing the mode of preparing it, and reporting on some advantages it possesses over other saline purgatives, among which may be mentioned its more pleasant and cooling taste, and that it does not produce subsequent constipation, nor calculi in the bladder, like magnesia salts.

A paper, by Mr. Cauvet, on the distinctive characters of French and Asiatic rhubarbs, refers mainly to the well known differences in the direction of the red medullary rays, and the greater prominence of the brown cambium zone in the former.

Mr. E. Bourgoin proposes to test oil of bitter almonds with an equal weight of caustic potassa; the pure oil changes merely to a yellowish color; in the presence of nitro-benzole a yellowish red color is produced, which rapidly changes to green; on the addition of water, the mixture separates into two layers, the lower of which is yellow, the upper one green changing to red in the course of a day.*

At the meeting held April 3d, Mr. Boudet reported on the essay by Mr. Lefort on the distribution of atropia in belladonna.† Some discussion took place

* See American Journal of Pharmacy, 1857, p. 544.

† See page 258 of this Journal.

on the proposed legislation relative to medical and pharmaceutical legislation.

Mr. Roucher stated that, under certain circumstances, Japan wax has two fusing points, and that beeswax does not show this phenomenon. He likewise exhibited the results of his investigations on digitaline and digitine.

PHARMACEUTICAL SOCIETY OF ANTWERP.—At the meeting held March 10th, the President, Mr. De Bruyne, in the chair, and Mr. Van Pelt, Secretary, an essay, by Mr. Eg. Daenen, on the preparation of Sydenham's Laudanum, was read, in which the author stated that the precipitate occurring in this preparation contains morphia and is caused by the tannin of the cinnamon. Chinese cinnamon and cassia lignea contain a larger proportion of tannin and yield a more voluminous precipitate than Ceylon cinnamon. By substituting the cinnamon and the cloves by a corresponding quantity of their volatile oils, a laudanum is obtained possessing all the essential properties of this medicine without the inconveniences. The author likewise advocates the employment of an opium or its extract, of a definite morphia strength.

A paper by Messrs. H. Vande Velde and Edm. Van Melckebeke was read, treating of the different processes that have been proposed for making Blaud's Pills, and suggesting the following formula: 180 grm. sulphate of iron and 110 grm. bicarbonate of soda are powdered, and added to a heated mixture of 15 grm. water and 5 grm. glycerin. When the disengagement of carbonic acid has ceased, remove from the fire, add 35 grm. honey, and incorporate afterwards 25 grm. gum Arabic and 2 grm. tragacanth, previously mixed; make into pills weighing 25 centigrm. each.*

THE AUSTRIAN APOTHECARIES' ASSOCIATION contemplates publishing a handbook of pharmaceutical chemistry, the author of which is Dr. Godeffroy, the chemist of the Association. The work, which is completed in manuscript, aims to treat exhaustively of all chemicals of importance in pharmacy, their mode of preparation, purification and examination.

Editorial Department.

OUR JOURNAL appears this month for the fourth time with the edges trimmed—an innovation which it was proposed to have commenced with the beginning of the volume. During these four months we have had many approving comments on the course adopted, while but three complaints have been made concerning it, and all three based upon the supposition that so much had been clipped off as to leave less margin in the bound volumes than heretofore. We take occasion to refer those of our readers who may have a similar impression, to page 42 of last year's volume, where information was given that the printed matter of each page has been *widened* and *lengthened*, while the size of the paper remaining as before, less margin is left in the fourth series of our Journal, which is now trimmed as *close to the edges* as possible.

* For other formulas for the same pills, see American Journal of Pharmacy, 1871, pages 307, 373, 471.

PHARMACEUTICAL LEGISLATION.—The Baltimore Pharmacy Act, approved March 23, 1870, has been repealed by the Legislature of Maryland, and in its place another law has been enacted and approved April 1, 1872, to prevent incompetent persons from conducting business as pharmacists or vending, at retail, drugs, medicines and chemicals for medicinal use in the city of Baltimore. The new law is an improvement on the old one.

On the 22d of May, Governor Hoffman signed the new Pharmacy law applying to the city of New York, and the famous Irving bill, with its costly commissioners, is now dead and buried. According to the new law the members of the College of Pharmacy of the city of New York elect the Board of Pharmacy, which is to be composed of five competent poarmacists, three of whom shall be graduates in medicine and two graduates in pharmacy. It is probable that the College has among its members more than the sufficient number of graduates in medicine, qualified according to this law, to act as examiners, so that it can establish the standard of acquirements, and hereafter becomes responsible for the qualification of the pharmacists in the city of New York.

Thus we have, beside the State of Rhode Island, now four large cities of the United States for which pharmaceutical laws have been enacted, namely, New York, Philadelphia, Baltimore and San Francisco. Other cities and States will probably soon follow.

THE PHILADELPHIA PHARMACEUTICAL EXAMINING BOARD has organized by the election of Mr. James N. Marks as President and James T. Shinn as Secretary. The office of the Board is at 723 Arch street, where the registration of those engaged in the business was commenced on May 20th. We understand that the Board also receives now applications by clerks for examination and certificates of competency, the examination to commence towards the latter part of June, after the registration of the pharmacists in business has been accomplished.

THE CHICAGO COLLEGE FUND.—The Committee in Great Britain having the matter in charge announced that the list of contributors would be closed on the 30th of April last. Up to April 12th the cash received amounted to £450, and the value of the books and specimens to at least £100. It was proposed to expend about one-half the cash in the purchase of other useful English books on pharmacy, chemistry, materia medica and botany, and the balance in apparatus and specimens for the illustration of lectures. A collection of various French works has been made through Dr. J. Léon Soubeiran, and will be sent with the donation from Great Britain.

The North German Apothecaries' Society has shipped to the Chicago College about 250 volumes of the following scientific journals: Archiv der Pharmacie, Buchner's Repertorium der Pharmacie, Buchner's Neues Repertorium der Pharmacie, Jahrbuch für Praktische Pharmacie and Journal für praktische Chemie.

A VICTIM OF THE DIPLOMA SWINDLE.—We copy the following from the Pharmaceutical Journal and Transactions of May 11th, which shows that the revok-

ing of the charters of the two bogus doctor factories by the Pennsylvania Legislature is hailed in Europe with the same satisfaction as in this country.

"On Tuesday, May 7th, an appeal was argued in the Court of Exchequer on behalf of Thomas Andrews, of Shrewsbury, against a conviction of the magistrates of that town for improperly using the letters M. D. after his name in accounts rendered. The appellant produced a diploma of the University of Philadelphia, United States, of the year 1870, but did not appear even to have visited the place or been examined before a qualified tribunal.

"Their Lordships were all of the opinion that the conviction should be affirmed, and dismissed the appeal with costs.

"Baron Martin expressed his satisfaction that measures were being taken by the Legislatures in America to suppress this issue of spurious degrees by the University of Philadelphia."

Protection Against Accidental Poisoning.—The College of Physicians of Philadelphia adopted the subjoined preamble and resolution, and have communicated the same to the American Medical Association, lately in session in this city, by which body they have likewise been adopted. They have also been communicated to several pharmaceutical societies with the request to consider them:

"*Whereas* cases of accidental poisoning and of the internal administration of medicines intended only for external use are so frequent; and—

"*Whereas* every possible safeguard should be employed to prevent such accidents; therefore

"*Resolved*, That it is recommended to all druggists to place all external remedies in bottles not only colored, so as to appeal to the eye, but also rough upon one side, so that by the sense of touch no mistake shall be possible, even in the dark; and that all bottles containing poisons should not only be labelled 'poison,' but also with another label indicating the most efficient and convenient antidote."

The Exhibition at the Twenty-third Annual Meeting of the American Medical Association has been quite successful and surpassed the expectation of most members. Five large rooms in the hall of the College of Physicians, of Philadelphia, were filled with philosophical, obstetrical and surgical instruments and apparatus, anatomical and pathological specimens and models, books, medicinal plants, crude drugs, chemical and pharmaceutical preparations and apparatus. The Committee on exhibition and the subcommittees deserve great credit for their exertions.

Quack medicines were, of course, excluded; but in order to exclude also the numerous elixirs and similar preparations of an order closely related to quackery, a resolution had been adopted prohibiting the exhibition of all unofficinal preparations, unless made by a formula published in some scientific journal, or by a process fully made known.

If these exhibitions, in connection with the annual meetings of the American Medical Association, are continued, we expect that the members will feel the interest increasing, and derive a benefit similar to that experienced by the members of the American Pharmaceutical Association from the exhibitions at their annual meetings.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Tables of Mortality, forming part of the Vital Statistics of the United States, Ninth Census, 1870. Washington, D. C., 1872. 4to, 423 pages.

We have been favored by Mr. Francis A. Walker, Superintendent of the Census Office, Department of the Interior, with a copy of the advance sheets of the above-named tables, which are nine in number. These returns of mortality, made under the act of 1850, are not assumed to include the entire body of deaths occurring during the census year; but the tables are valuable, distributing as they do nearly half a million (492,263) of deaths, according to disease, age, sex, nativity, race, color and occupation, as well as the month in which the deaths occurred. A discussion of the bearings of this subject is promised for the final publication, and will doubtless be extremely interesting to the statistician. We now remark that there has been reported for the year 1870 only one death for 78·33 inhabitants (total number of inhabitants, 38,555,983). Of the number reported 260,673 were males, and 231,520 were females. Of 2·4 deaths of males and of 2·47 deaths of females, one child under 5 years was carried off. The deaths by poison numbered 2351 males (1410 by alcohol, 31 by lead, and 910 by other poisons not specified) and 599 females (249 by alcohol, 2 by lead, and 349 by other poisons). The poisons "not specified" must include suicides, murders, fatal mistakes and accidents by poison. Their proportion to the entire number of reported deaths of the respective sexes was, therefore, 0·349 per ct. among the males and 0·1502 among the females.

We cannot ascertain the mortality of apothecaries and druggists, since table viii recognizes only the following occupations: agriculturists, clergymen, laborers, lawyers, merchants and clerks, mill and factory operatives, all other mechanics, physicians and teachers.

The Physiological and Therapeutical Action of the Bromide of Potassium and Bromide of Ammonium. In two parts. By Edward H. Clarke, M. D., and Robert Amory, M. D. Boston: James Campbell. 1872. 12mo, 178 pages. Price, $1.50.

The work consists of two monographs, supplementary to each other, Part I treating of the "Therapeutical Action of Bromide of Potassium and its Kindred Salts," while Part II has the "Physiological Action of Bromides of Potassium and Ammonium" for its subject. The latter, written by Dr. Amory and published in the Transactions of the Massachusetts Medical Society a few years ago, was received with such favor that another edition became necessary. The propositions of this essay are stated as follows:

A. Bromide of potassium is absorbed readily by any portion of the healthy mucous membrane with which it is placed in contact.

B. It is largely and mainly eliminated with the urine; during the first day the largest portion passes out of the system, less during the second day, and so on until there is none left in the system.

C. The skin assists in the elimination of this drug from the system on the second as well as on the first day.

D. The loss of reflex action is due to the diminution of blood in the periphery of the nerves, and also of the central nervous system, this last occurring after the first.

E. The action of bromide of potassium on the nervous system may be explained by its action on the capillary, arterial or central circulation.

The experiments from which these propositions have been deduced are briefly but clearly related.

Part I, written by Professor Clarke, occupies 103 pages, the greater part of the volume before us. The subject is discussed under the following headings: Absorption, Elimination, Action while in the System; The Continued Dose; Action of the Toxic Dose; Special Applications of the Continued Dose; Epilepsy; Hysteria; Antagonism of Bromide of Potassium and Strychnia; which chapter is followed by a brief account of the other alkaline bromides.

The medical literature in both essays has been extensively consulted, critically examined, and carefully compared with the experiments and observations of the authors; thus many interesting facts have been established which must prove very valuable to the medical practitioner.

The chemistry, as a general rule, is correctly given; in a few instances only have we observed statements which can scarcely be considered as sufficiently exact. Thus, on page 112, the following passage occurs: "The bromide of sodium closely resembles in *appearance, taste, solubility* and physiological action, the bromide of potassium, bromide of ammonium and bromide of lithium." The italicized words are the portion to which we take exception as regards exactness. On page 123 it is stated that "the stronger acids with difficulty liberate the *bromine* at an ordinary temperature." Bromine is liberated in the form of *hydrobromic acid*

A physical law which is so frequently disregarded by physicians in ordering medicines shares here no better fate on p. 101. One ounce bromide of potassium was dissolved in three (fluid?) ounces of water, and half an (fluid?) ounce given as a dose; the solution will measure over 3½ fluidounces, and the dose contain about 65 grains of the salt, whereas the author regards the salt as occupying no space, and states the dose as eighty grains, a difference of about 23 per ct. over the correct quantity.

First Annual Report of the Alumni Association of the College of Pharmacy of the City of New York. Containing, also, the Valedictory Address delivered by Professor C. F. Chandler, and the Address of the President of the Society, D. C. Robbins, Esq. New York: Croker & Telfer, Printers. 1872. 8vo, 39 pages.

The valedictory address of Professor Chandler is an excellent "farewell" to the graduates; it discusses several important questions relating to pharmacists and pays a deserved tribute to the creation in New York of the famous (?) Irving bill, which, happily, is now a thing of the past, in the following passage:

How much could our College do with the money which is now being expended on the Commission of Pharmacy! Last year the pharmacists paid $11,880, while the city paid $8000 more, or about $20,000 in all, to find out whether the apothecaries were competent for their business. This year the 300 still to be examined are expected to pay about $5000, and the city $11,000 more, or $17,000 in all. Nearly $38,000 in two years to find out whether the apothecaries know their business, but not a cent to instruct them. The College works faithfully in its modest way, with a few hundred dollars a year for its expenses, while the Legislature taxes the apothecaries and the city enough in two years

to provide the College with a permanent building; assesses nearly $38,000 for what the College will gladly do gratuitously.

The annual address of the President of the Alumni Association likewise possesses a lasting value. It reviews the history of the New York College of Pharmacy as an educational institution, and discusses briefly the past, the present and the future of the pharmaceutical profession in the United States. We extract from it the following statistical information, which we think will be interesting to our readers:

In Prussia, the government considers one apothecary's store to be quite sufficient for 7500 population, while throughout our whole Union the average everywhere is about one to every 2500 souls, a proportion which appears to prevail without much regard to locality or circumstances; thus, with about one million population within the city of New York, we have over 400 apothecaries. In the whole Union, with about forty millions, we have a little less than 13.000 druggists and pharmacists, and we find that the more restricted the range of the pursuit the greater number of persons are engaged in it, in proportion to the population; consequently the rewards within our cities for the pursuit of one of our most responsible professions, requiring extensive education as well as culture and close application, are quite inadequate.

Gmelin-Kraut's Handbuch der Chemie. Anorganische Chemie in drei Bänden. Sechste umgearbeitete Auflage. Heidelberg: Carl Winter's Universitäts buchhandlung. 1871.

We have noticed the appearance and spoke of the merits of this new edition in our January number, and now have upon our table the third and fourth numbers of the third volume, revised by Dr. S. M. Jörgensen, of Copenhagen, which contain the elements thallium, lead and part of iron.

Formulas for some Elixirs and Medicated Wines, adopted by the Louisville College of Pharmacy, January 16th, 1872. Chicago: J. J. Spalding & Co., Printers. 1872. 8vo, 9 pages.

These formulas were reported by Professor Diehl at the request of the Committee on Unofficinal Formulas of the Louisville College of Pharmacy. Their adoption by the College named is a step in the right direction, calculated to replace by "home made" preparations the semi nostrums of others. It is to be regretted that there are so many physicians, even in the larger cities, who—unthinkingly—rather rely on the assertions of distant and near manufacturers than upon the experience and knowledge of their accomplished pharmacists, who, honestly and without claiming a proprietaryship, impart their experience, and freely acknowledge that they cannot prepare—what nobody else can do—a bitter wine of iron, or an elixir of quinia containing gr. j to f℥j, which do not possess a bitter taste. Under the pretence of "elegant pharmacy," innumerable preparations have been introduced to and are used by the thoughtless and unwary physician. Any measure calculated to correct this abuse must be welcomed by the conscientious pharmacist. Some of the formulas proposed may, perhaps, not be the best that can be devised, but they will furnish pleasant preparations of known definite strength, and as such should be preferred by the conscientious physician to preparations the processes for which are kept secret.

Transactions of the Twenty-first Anniversary Meeting of the Illinois State Medical Society, held at Peoria May 16th, 1871. Chicago: Fergus Printing Co. 1872.

The original edition was burned during the Chicago fire. The present contains only such reports of which copies had been preserved by their authors.

Forty-sixth Annual Report of the Surgeons of the Massachusetts Charitable Eye and Ear Infirmary. February, 1872. Boston: James Campbell, Publisher. 8vo, 28 pages.

The pamphlet contains, besides the statistical accounts usually found in such publications, also an essay, by Dr. B. Jay Jeffries, on breaking up attachments of the iris to the crystalline lens or posterior synechiæ.

Amnesic and Ataxic Aphasia with Agraphia and Temporary Right Hemiplegia, the Result of Embolism of the Left Middle Cerebral Artery. By T. M. B. Cross, M. D., &c. Louisville, 1872.

An interesting case, reprinted from the "American Practitioner" for April.

Eighth Annual Report of the Alumni Association of the Philadelphia College of Pharmacy. Containing, also, the Valedictory Address delivered to the Graduating Class of 1872 by John M. Maisch, Professor of Materia Medica and Botany; and the Prospectus of the Ensuing Course of Lectures in the Philadelphia College of Pharmacy. Philadelphia, 1872. 8vo, 49 pages.

In addition to the contents of this pamphlet, as indicated by the title, it contains the Proceedings of the Association at its eighth annual meeting, together with the usual documents, a report of the Superintendent of the Laboratory, list of members, &c.

OBITUARY.

Professor Hugo Von Mohl, the celebrated botanist, died suddenly of apoplexy April 1st, on the morning of which day he was found dead in his bed. His death is a severe loss to the University of Tübingen, where the deceased has labored since 1835 as professor of botany and director of the botanical garden. Von Mohl was born at Stuttgart, April 8th, 1805, and had therefore nearly completed his 67th year. The investigations of the deceased were mainly in the field of vegetable physiology.

George Robert Gray, F. R. S.—We regret to have to record the death, on Monday, May 6th, of George Robert Gray, F. R. S., Assistant Keeper of the Department of Natural History at the British Museum. Mr. Gray was the youngest son of Samuel Frederick Gray, author of the well known "Supplement to the Pharmacopœia." The deceased gentleman was himself the author of some highly esteemed works on various branches of natural history.

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July 5

VOL. XLIV.] [NO. VII.

AMERICAN JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] JULY, 1872. [VOL. II, NO. VII.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

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NOTICE BY THE PUBLISHING COMMITTEE.

The American Journal of Pharmacy has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use. To render all this more available, a General Index is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

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William Procter, Jr., Alfred B. Taylor,
Prof. John M. Maisch, Thomas S. Wiegand,
Charles Bullock, *Committee.*

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THE

AMERICAN JOURNAL OF PHARMACY.

JULY, 1872.

COTTON ROOT.

By Professor E. S. Wayne.

Read before the Cincinnati College of Pharmacy.

The root of the cotton plant (*Gossypium herbaceum*) has for some time past been accredited with possessing the properties of an emmenagogue, parturient and abortive, and said to promote uterine contractions with as much efficiency and more safety than ergot.

As yet no analysis has been made of the root to determine its proximate principles, and to ascertain whether it contains any of the principles found in ergot, such as propylamin, or alkaloids such as ergotina and ecbolia, found in that substance by Wenzell.

The fluid extract of cotton root is a preparation largely used in the West, and highly spoken of as above by some practitioners. It is very prone to deposit a peculiar red precipitate a short time after it is made; and the frequent complaints made respecting this has induced me to make some investigations as to the cause and nature of the deposit, and, at the same time, of some of the proximate principles existing in the root, or, more properly speaking, of the bark of the root.

For this purpose one pound of the root bark, in suitable powder, was exhausted with alcohol of 76°; the resulting percolate was of a pale amber color. This was distilled to separate any resin present in it. After distilling off the alcohol, there was left in the still a dark red aqueous solution of extractive, &c., and a dark red resinous mass.

The resinous mass was removed and reduced to a coarse powder, and washed with water as long as anything was taken up by it, then

dried and reduced to a powder. It then resembled very much in appearance powdered cochineal.

The change that had taken place in the color of the original percolate by the action of heat during the distillation, was a matter of much surprise to me; the resulting aqueous solution and separated resin being so different in color to that of the original percolate, from a pale amber color to a dark red, resembling in appearance that of a solution of kino.

The red resin obtained from one pound avoirdupois of bark, weighed 210 grains.

Upon examination of the dark resinous mass, it was found to be insoluble in the following menstrua: alcohol, chloroform, ether, aqua ammoniæ, but soluble in solutions of caustic potassa and soda; the solution a dark purplish-red color, and precipitated unchanged on the neutralization of the alkali by acids.

A portion of the precipitate that deposited by standing in the fluid extract of cotton root was filtered off, washed and dried, and submitted to the action of the same solvents as the resin mentioned, and with like results.

The watery solution left in the still was, as mentioned, also of a dark red color, and gave the following precipitates with solutions of metallic salts. With mercuric chloride, red; with argentic nitrate, purplish-red; with plumbic acetate, purplish-red, and with ferric sulphate, purplish-black.

The remaining portion, after making the above tests, was precipitated with plumbic acetate, which precipitated the red coloring matter, and left it of a light yellow color; then treated with sulphhydric acid to remove excess of lead, and, after filtration to remove the sulphide of lead, was evaporated to dryness in a water-bath. The extract mass left was of a light yellow color, and exceedingly hygroscopic. A portion of it was dissolved in water, and tested for the presence of an alkaloid with solution of iodohydrargyrate of potassium, but gave no indications of the presence of any.

With Trommer's copper test it gave an abundant precipitate of cuprous oxide, indicating the presence of sugar.

A portion was also agitated with ether, and another with chloroform, and, after separation had taken place, the ethereal and chloroform solutions separated and left to spontaneous evaporation, no crystallizable proximate principles were separated. To a quantity of the

powdered bark was added a solution of caustic potassa; there was no development of propylamin, as with ergot.

From the above experiments, it would seem that cotton root bark contains no substances similar to those of ergot, upon which its therapeutic value rests, nor any other peculiar alkaloid or proximate principle except the red resinous mass spoken of, or a substance colorless as in the original percolate, and by oxidation changing to this red substance. This red matter seems to be a peculiar one—an acid resin, insoluble in alcohol, chloroform and ether, forming colored precipitates with metallic salts, and soluble in solutions of caustic potassa and soda.

The red color of the watery solution described is also due to this, and held in solution through the solvent action of organic matter present, often the case in such solutions, and sometimes with difficulty gotten rid of.

The substance that produces this red-colored acid resin, seems to exist in all parts of the plant—in the flowers and in the seeds—the purplish tint at the base of the petals is due to it, and in the seeds the dark red spots there found, and which gives to crude cotton seed oil its dark color, and which is removed in the process of refining the oil by the solvent action of caustic alkalies. From the solubility of this substance in alkalies, and forming well-marked and characteristic precipitates with metallic solutions, it has claims to be classed an acid, and would propose for it the name of gossypic acid.

Having satisfied myself as to the nature of the substance that composes the precipitate in the fluid extract of cotton root, and the identity of the precipitate with the resinous mass that was left in the still, as mentioned, I would say that it is impossible to prevent the same from forming in it, as it is caused by a chemical change taking place in a peculiar proximate principle in the plant, insoluble in the alcoholic menstruum.

Whether the addition of glycerin or sugar would prevent this, I have not determined, and will report experiment at some future time.

Query: Is this acid or the substance from which it is produced the active principle of cotton root?

The cotton seed cake (the mass left after pressing out the oil) contains more or less of it, and I am informed by Dr. John A. Warder, that cows fed upon it will abort, otherwise it is a nutritious food for cattle. Some of the substance I have placed in the hands of practitioners for practical test, but as yet have had no report concerning it.

Cincinnati, May, 1872.

ON SOME PECTORAL POWDERS OF EUROPEAN PHARMACY.

By the Editor.

At the request of two correspondents we publish the following formulas of preparations, which are more or less used on the continent of Europe, and occasionally prescribed in this country. The two first formulas yield a mild aperient preparation.

Pulvis glycyrrhizæ (s. liquiritiæ) compositus; Pulvis pectoralis Kurellæ is prepared, by the German pharmacopœias, by mixing intimately the powders of senna and liquorice root, each 2 parts; fennel and flowers of sulphur, each 1 part; sugar 6 parts.*

The formula of the Greek pharmacopœia differs somewhat, as follows: liquorice root and senna, each 6 parts; sugar 3 parts; anise 2 and sulphur 4 parts.

The Belgian pharmacopœia orders: marshmallow root, 36 parts; orris root, liquorice root, tragacanth and sugar, of each, 16 parts.

Pulvis pectoralis antispasticus.—The Danish pharmacopœia uses ipecac and opium, of each, 1 part; starch, 40, sugar, 80 parts. This preparation is twelve times weaker than Dover's powder.

Pulvis pectoralis resolvens.—The same pharmacopœia mixes equal weights of flowers of sulphur, orris root and Indian turnip (*Arum maculatum*).

Pulvis pectoralis Trossii; Saccharolatum lichenis Islandici.—The old Hamburg pharmacopœia prepares it as follows: 2 parts of Iceland moss are twice boiled with 32 parts of water until 16 parts are left; the liquids are expressed, strained, mixed and evaporated to 10 parts; when somewhat cooled, 8 parts of strong alcohol are added, the precipitated jelly is collected, washed and mixed with 1 part of sugar, when it is carefully evaporated to dryness, and powdered.

The Sleswick-Holstein pharmacopœia removes the bitter principle by an alkali, and manipulates as follows: 1½ oz. Iceland moss are macerated with hot water containing one drachm carbonate of potassa; after 24 hours the liquid is expressed, the residue washed with cold water, and then boiled with 24 oz. water until 6 oz. remain behind, in which 4 oz. sugar are dissolved by boiling. The solution, on cooling, forms a good jelly, which constitutes *gelatina lichenis islandici edulcorata*. Six parts of this, 4 parts sugar and one part gum arabic are mixed, dried and rubbed to a uniform powder.

*The formula published on page 336 of the Philadelphia Medical Times, requiring but 3 parts of sugar, is that of the sixth Prussian Pharmacopœia of 1846, and not in use in Germany since 1862.

Pulvis pectoralis Wedelii.—Hager, in his Manuale pharmaceuticum, gives the following formula: liquorice root, 8 p.; orris root, 2 p.; sulphur, 4 p.; benzoin, 1½ p.; sugar, 16 p.; oil of fennel and of anise, each ⅓ parts.

The proportions of the Danish pharmacopœia are: liquorice and orris root, each 6 p.; sulphur, 4 p; benzoic acid, 1 p.; sugar, 16 p.; oil of fennel and of anise, each ⅛ part.

The formula of the Würtemberg pharmacopœia of 1798 was as follows: Arum maculatum (Indian turnip), orris root, diaphoretic antimony, flowers of sulphur, native cinnabar and crab's eyes, equal parts.

ON LOBELINA.

By W. D. Richardson, Jr.

From the author's Inaugural Address.

Lobelina has a light yellowish color and somewhat aromatic odor. It is lighter than water, and when dropped into that fluid rises to its surface, spreads out like a drop of oil, and gradually dissolves, forming a transparent solution. It has an extremely acrid taste, turns turmeric paper brown, and restores the blue color to litmus reddened by an acid. It neutralizes the acids, forming with most of them crystallizable salts. The acetate of lobelina does not crystallize, and is the most soluble of the salts; hence the superiority of acetic over the other acids in the process for obtaining the alkaloid.

The salts are very soluble in water, less in alcohol, and sparingly soluble in ether; whereas lobelina is most soluble in ether, and least in water. In its natural state it is combined with lobelic acid, for which it has a rather weak affinity.

One of the most interesting properties of this alkaloid is its decomposition, either in the free state or as it exists in the herb, by heat; that of boiling water being sufficient to deprive it of its characteristic acrid taste; but, on being combined with a strong acid, it may be subjected to heat without injury.

The separation of lobelina from its aqueous solution, by means of ether, is not complete, both on account of the gelatinous consistence imparted to the lower position of the ether, and its affinity for the coloring matter, which is more soluble in water than in ether, as demonstrated by the following experiment of preparing lobelina by Prof. Procter's process.

Four troy-ounces of finely-powdered seed were exhausted with alcohol acidulated with acetic acid, evaporated to a syrupy consistence, triturated with magnesia, and four fluid-ounces of water gradually added; and after frequent agitation for several hours, the liquid was filtered, and the filter washed with a small quantity of water. This solution was then agitated frequently with ether, during four or five hours, and the ethereal solution decanted.

The residue was treated in the same manner, with two successive portions of ether, and the ethereal solutions, mixed and evaporated spontaneously, yielded lobelina. The aqueous solution was found still to have an alkaline reaction and acrid taste.

It was treated with iodohydrargyrate of potassium, which produced a yellowish-brown precipitate. This was washed with water slightly acidulated, dissolved in alcohol, and decomposed by sulphuretted hydrogen, which precipitated the mercury, and left the hydriodate of lobelina in solution.

The whole was transferred to a filter, and washed with alcohol. The filtrate had a beautiful reddish-brown color, and was tested with mucilage of starch for free iodine with no effect, then evaporated to dryness; the residue, treated with a small quantity of water and filtered, had a light yellowish color. To this solution was added nitrate of silver, which produced a yellowish white precipitate, the nitrate of lobelina remaining in solution. The solution filtered and evaporated spontaneously, yielded yellowish, transparent, granular crystals, having no odor, but possessing the characteristic acrid taste of the base. The nitrate of lobelina, by exposure, deliquesced, and assumed a somewhat darker color.

2. A portion of lobelina in a watch crystal was exposed four days. It changed to a resinous consistence and darker color. In this state it is scarcely soluble in water, but readily dissolved by alcohol and ether. Cold nitric and sulphuric acids had no effect.

3. Another portion of lobelina, which had been exposed four days, was dissolved in water, and a few drops of muriatic acid added to the solution. This produced a white precipitate, which, by heat, changed to a brown color.

4. An aqueous solution, exposed for a longer time, slowly deposited a white sediment, which, after the decanting of the water, resumed its brown color.

5. A portion of the exposed lobelina was boiled with diluted sul-

phuric acid, and Trommer's test applied without giving any evidence of glucose.

6. Two troy-ounces of the seed were treated according to the process for obtaining colchicia, but without a satisfactory result.

From the above experiments, it appears that lobelina, by exposure, undergoes some change, by which it is rendered incapable of uniting with acids to form salts.

ON AN ASSERTED SPECIFIC FOR AGUE.

By John M. Maisch.

When I wrote the short notice on *Artemisia Ludoviciana*, Nuttall, in my "Pharmacognostical Notes," in the May number of this journal, I did not expect that I should meet again, in so short a time and under a different garb, with a plant which appears to possess the properties of the aromatic bitters merely in a very moderate degree. In the same month in which the above-mentioned paper was first published, I received from East Saginaw, Michigan, a letter from Mr. F. C. Weber, enclosing portions of the flowering tops of this plant, which had been offered to him as a specific for ague. Guided by the information received from Mr. Weber, I applied to Mr. Ottmar Eberbach, at Ann Arbor, Mich., who kindly furnished me with an original package, the dimensions of which are 2 by 2½ by 4 inches, and which weighs 3½ ounces. The material consists of the leaves and the flowering tops, with but small portions of the stems of the plant named above, the whole cut up and much broken, but the botanical characters, particularly of the flower-heads, readily discernible. It is done up in an angular package, of the dimensions stated, and packed first in thin white printing paper, which is enclosed in a wrapper of yellow paper, with the following printed on the outside:

CHINESE AGUE CURE.

Chinese Ague Cure. | *Quinine no go.* | [Wood-cut of a Chinaman, holding a plant in his right hand.] | *Quinine no go.* | Chinese Ague Cure.

Directions.—Steep a tablespoon once and a half full of the herb in one quart

of water; drink at any time during the day, when the stomach will bear it, and freely at night before retiring.

This herb will not only neutralize and drive out the Ague poison, but will thoroughly

CLEANSE THE SYSTEM

and purify the blood, by continuing its use moderately for a few days.

This herb has been analyzed and by the medical faculty of the University of Michigan, at Ann Arbor. It is gathered by the Chinamen in the West, and is put up by G. Engle & Bro., *Ann Arbor, Michigan.*

It is curious, though, under the circumstances, not surprising, that this "wonderful" medicine was entirely unknown at Ann Arbor, except to the proprietors; and it is but just to state that the name of the University of Michigan has been unwarrantably connected with it. From the information received, it appears that Prof. Rose was, last winter, requested by Mr. Engle, a law student of the University, to analyse a handful of the herb, which was then stated to have been collected near Salt Lake, Utah. The analysis, however, was not made by the Professor. The blank space left above near the lower end of the wrapper, is in the original blurred over with blue paint or printers' ink, which leaves the word "and" plainly visible, but renders the following word (to judge from the space, probably "recommended") quite indistinct.

The circular announcing the virtues of this new claimant for public favor and for the money of those who like to be duped, bears, likewise, the effigy of the Chinaman. Its contents deserve to be preserved for future reference and edification, and we therefore give it, *verbatim et literatim:*

CHINESE HERB.

Burning fever and Ague Chills,—Need not be endured; nor those Quinine Pills: For, soon as the Chinese Herb is given,—The Fever will cease,—The Ague be driven.

If you, my friend, would keep your wealth?
And, what is more,—your solid health?
Keep the Quack Doctors from the door!
And use the "Chinese Ague Cure."

No more Quinine. This Herb is cured and put up in its natural state; and thus should be used. It will drive all fever and ague, and cure many diseases by purifying the blood.

We must admit,—the "Heathen Chinee" is ahead of us in curing the sick. —The Chinese Herb should be within the reach of every family: for the price will admit.

Druggists? Supply your customers. We will allow a large commission. A trial package will convince you of its merit. Doctors can use it in practice to their advantage.—Price, 75 Cents.

ON THE BOTANICAL ORIGIN OF THE COMMERCIAL ROOT OF CYPRIPEDIUM.

By John M. Maisch.

In the May number of this journal (page 194) I stated that two different rhizomes are met with in commerce under the common name of ladies' slipper, but that I was unable to make out their origin for want of specimens of the different species of *Cypripedium*. Since the publication of my paper I have been enabled to verify my former supposition that *C. pubescens* and *parviflorum* contribute their roots to the commercial article. My thanks are due to Mr. James T. King, who sent me living specimens of the former species from Middletown, N. Y., where it grows, though not abundantly; also to Messrs. Ferdinand Reppert, of Ann Arbor, Michigan, and Henry Maclagan, of Lindsay, Ontario, from whom I received *C. parviflorum*. Mr. Reppert collected his specimens in a tamarack swamp, about three miles south of Ann Arbor, where also *C. spectabile* is occasionally found, but not *C. pubescens*. Other species than *C. parviflorum* and *spectabile* appear to be likewise of rarer occurrence near Lindsay.

The most characteristic difference in the growth of the two rhizomes is that the one belonging to *C. pubescens* is almost horizontal, and even in its greatest length, observed by me, measuring nearly 4 inches, but slightly bent, with one shallow downward curve; its thickness is usually about $\frac{1}{8}$ to $\frac{3}{16}$ inch, with deeply concave scars of the over-ground stems, having fully the diameter of the rhizome. Some rhizomes have short branches, swelled considerably at the places where the flowering-stems had been developed, leaving scars frequently fully half an inch in diameter. The more recent scars have a rather long fibrous tuft of the dead ligneous tissue, which gradually disappears in the older ones. The scars are rather crowded, being distant from each other less than the length of their own diameter. The numerous rootlets reach a length of nine inches, with about $\frac{1}{12}$ inch in diameter, are entirely free from branches, and, though attached to all sides of the rhizome—owing to the position of the latter in the ground,—are rather abruptly bent downwards, leaving the upper side of the rhizome almost bare. They are considerably undulated, and have a yellowish-brown color externally, which becomes much darker on drying, when the rootlets shrivel much, showing longitudinal wrinkles. The cortical portion of the rootlets is colored blue by iodine, the ligneous cord, about $\frac{1}{8}$ the diameter, becoming yellowish, while the cortical por-

tion of the rhizome becomes darker, but not blue, the ligneous centre behaving like that of the rootlets.

The rhizome of *C. parviflorum*, of which I received a larger number of living specimens, grows in an entirely different manner. It is bent up and down in a direction differing but little from right angles, the sides of which are about ¾ inch in length. None of the specimens received had more than four such bends or three angles, so that the length of the rhizome, actually about three inches, is in a straight line about two inches. The diameter of the rhizome is about ⅛ inch, the stem scars fully the same, somewhat alternating in their position, and about three in number on each bend. Short, thick side branches were not observed. The rootlets are likewise attached to all sides of the rhizome, the upper surface of which is always more or less covered with them, a natural result of its position in the soil. They are about 4 to 6 inches in length, of about the same diameter, but less wavy than those of *C. pubescens*, from which they differ likewise in their brighter color, which is a decided orange-brown when fresh, and remains brighter after drying. In the relative thickness of the cortical and ligneous portion of the rhizome and rootlets, as also in the amount of starch contained therein, as far as may be judged from the color imparted by iodine, the two species closely resemble each other. This resemblance is also found in the peculiar musty odor, and the mucilaginous, disagreeable, scarcely bitterish, somewhat acrid taste.

The roots of these two species of *Cypripedium*, I am now satisfied are the only ones which I have observed in the commercial article, in which the appearance, particularly of the rootlets, will vary somewhat. When pressed in packages, owing to the moist condition, the rootlets will be apparently much thicker than after curing the drug without pressure, and the shape of the rhizome is apt to lose its characteristic form; the color of the rootlets and the presence or absence of the thicker lateral rhizome branches may then aid in determining the origin, while there will scarcely be any difficulty in this, if the rhizomes have been dried without pressure.

P. S. After the above was in type, I received from Mr. H. Maclagan several splendid specimens of *C. pubescens*, with numerous short side branches, and with rootlets measuring 18 to 21 inches in length. My thanks are likewise due to M. Alfred Daggett of New Haven, Conn., for some fine specimens of *C. acaule*.

VALUABLE PRODUCTS OBTAINED FROM *MACLURA AURANTIACA*, NUTTALL.

Bonham, Texas, May 27th, 1872.

The writer respectfully suggests that the article noticed by Prof. J. M. Merrick (published in *Amer. Jour. Pharm.*, *Feb.*, 1872, p. 82) is probably an extract from the wood of the Bois d'Arc (*Maclura aurantiaca*, Nuttall), a native tree of Northern Texas, and largely used in the Nortwestern States for hedges, under the name of *Osage orange.* A decoction of the wood, obtained by boiling the chips in water, has been used here many years for coloring yellow. A solid extract, obtained in the manner used for extract of logwood, gives a beautiful yellow extract, which might very properly be called *Aurantine.* This suggestion is made for the benefit of the curious in such matters, and might well repay the experiment of the scientific. The material is abundant in this section of Texas.

In addition to the coloring matter obtained from the Bois d'Arc, it also yields a large percentage of tannin. Experiments have been made here with it in tanning leather, which indicate its great superiority over the oak barks or sumach, and requiring much less time.

The seeds from the fruit yield an abundant, bland and limpid oil, burning with a steady, clear flame in an ordinary lard oil lamp. In taste it resembles very much that of olive oil, and maintains its fluidity at a low temperature. The specimen we have was obtained by expression in the ordinary manner, and we are of the opinion that it will yield equal to the castor bean. "Texan."

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Preparation of pure muriatic acid.—Th. Diez dilutes the crude acid until it has a specific gravity of 1·13, and passes sulphuretted hydrogen through it, whereby arsenic, chlorine and sulphurous acid are removed, and the ferric chloride is converted into ferrous chloride. Next morning the precipitate is collected upon a double filter, and the acid distilled from a glass retort into a glass receiver, which fits well, but is not luted. Heat is applied, and when the distilling liquid ceases to contain sulphuretted hydrogen, the receiver is changed and the pure acid collected. Towards the close of the operation the receiver is again changed, as the distillate is now apt to contain again

traces of ferric chloride, in which case it is reserved for a subsequent purification.*—*N. Jahrb. f. Pharm.*, 1872, *April*, 203.

The external application of chloral hydrate to syphilitic ulcers has been successfully tried in 69 cases by F. Acetella. After a few applications healthy granulations were formed and the ulcer changed into a simple wound. Several of the cases were of long standing, and had resisted various treatments for 12 and even 15 months. *Ibid.*, 231, *from Allg. Med. Centr. Ztg.*

Dry narcotic extracts, when prepared with dextrin, cannot be dissolved in alcoholic liquids, owing to the insolubility of dextrin in the latter. W. Stromeyer prepares these extracts now with sugar, and finds that they remain perfectly dry. It is necessary, however, to exsiccate the mixture at a temperaeure not exceeding 80° C., since a higher temperature causes them to remain soft. Thus prepared they dissolved readily in the usual solvents by simple agitation.—*Archiv d. Pharm.*, 1872, *March,* 225.

Action of sunlight upon olive oil.—Luigi Moschini found that olive oil, bleached by exposure to sunlight, does not alter its specific gravity ; if now treated with sulphuric acid (sp. gr. 1.63) it is colored red-yellow, not greenish ; by nitric acid or caustic soda it acquires a whitish instead of a green or light yellow color. Exposed to the sunlight in open vessels for one month, the oil continues to congeal under the influence of nitrous acid ; but after two or three months the oil remains liquid, even if treated with a solution of nitrate of mercury saturated with nitrous acid. The bleached oil has a strongly acid reaction, a somewhat rancid odor and taste, and dissolves aniline red easily, acquiring a deep color.

It follows from this that the usual tests for the oils—nitric acid, sulphuric acid, caustic soda and aniline red—are apt to mislead if pure olive oil has been exposed for some time to the sunlight and become rancid. Normal olive oil contains a yellow principle, which is colored green by acids, and which is decomposed by the sunlight so that neither the acids nor caustic soda produce the characteristic reactions ; at the same time free acids are formed, and the olein gains one of the characteristic properties of claidin.—*Chem. Centr. Bl.*, 1872, *N.* 17, *from Landw. Vers. Stat.*, xv, 1.

* See also page 164 of April number Amer. Journ. Pharm., 1872.

Antimonic blue.—This new beautiful pigment which, however, cannot be used upon lime, is easily prepared by dissolving metallic antimony in aqua regia, filtering through granulated glass and adding a dilute solution of ferrocyanide of potassium as long as a precipitate is produced. It resembles ultramarine, and yields, with chrome yellow or chromate of zinc, a green color, scarcely less bright than Paris green, but much less poisonous. It may be used with oil, varnish, gum, glue and starch.—*Ibid., from Polyt. Notizbl.* xxvii, 112.

Arseniate of antimony.—The *grannles antimoniaux de Papillaud* contain, according to H. Blaser, each 0·0005 grm. of this compound, which appears to be also used in Russia in doses of 0.0012 grm. four times daily. Hager prepares it by first obtaining oxide of antimony from the chloride by precipitating with dilute solution of carbonate of soda, washing with a warm solution of the same salt, then with distilled water, and drying. Ten grm. of the oxide are dissolved, with moderate boiling, in four times tee quantity of muriatic acid of 25 per cent. After cooling, small fragments of carbonate of soda are added until a faint turbidity becomes permanent. 12 grm. of anhydrous neutral arseniate of soda are dissolved in 120 grm. of distilled water, into which solution the antimony solution is gradually dropped with continued stirring. The liquid is then diluted with more distilled water and the precipitate washed by decantation and upon the filter, until the filtrate ceases to occasion a turbidity with nitrate of silver. It is then dried at a temperature of about 50° to 60° C., and then constitutes a snow-white, not very heavy powder. Its composition is SbO_3, AsO_5, and it contains 56 per cent. oxide of antimony and 44 per cent. arsenic acid. If the solution of the chloride is added too rapidly, or if the precipitate is washed with hot water, the preparation contains an excess of antimony.—*Pharm. Centr. Halle*, 1872, *N.* 20.

Chloride of mercuric ethyl was first prepared by Strecker and Frankland from the iodide. A very simple method, according to Prümers, is to add an alcoholic solution of corrosive sublimate to mercuric ethyl; the crystalline precipitate is washed upon a filter with warm water and dried over sulphuric acid. The reaction is as follows: $Hg(C_4H_5)_2+Hg\,Cl_2=2\,Hg(C_4H_5)Cl$. It occurs in white glistening scales, is little soluble in water, ether and cold alcohol, but dissolves freely in hot alcohol. At 40° C. it sublimes without fusing previously; its odor is peculiar, not disagreeable. Stannous chloride, potassium io-

dide and mineral acids are without action upon it, and albumen is not precipitated. It has been successfully used in Berlin in cases of syphilis in the form of pills (0·5 to 1·0 in 100 pills) and subcutaneously (0·5 to 10 grm. in 100 water).—*Ibid.*, *N.* 22.

Cod liver oil is flavored, by Duquesnel, with 1 per cent. of oil of eucalyptus, which covers the odor and taste so completely that only that of the latter is perceived, and even the unpleasant eructations are entirely modified.—*Journ. de Pharm. et de Chim.*, *May*, 1872.

ON QUINAMINA, A NEW CINCHONA ALKALOID.

By O. Hesse.

Cinchona succirubra, cultivated in British India, is now so far developed that considerable quantities can be exported, and its value, which, according to Howard, is not inconsiderable, may be established. I have found this bark to contain relatively much quinidia (cinchonidia ?) some quinia, and in variable proportions other alkaloids, among them a new one, which I propose to call quinamina (chinamin.)

Quinamina crystallizes in very fine long, asbestos-like, white prisms, which contain no water of crystallization. It dissolves at ordinary temperature rather easily in ether, more readily on boiling, and crystallizes on cooling and evaporation. Alcohol and petroleum ether dissolve it readily, particularly when heated, and separate it likewise in the crystalline form. It is little soluble in diluted alcohol and insoluble in water, caustic potassa and ammonia ; alkalies separate it from the solutions of its salts as a milky turbidity and finally in fine needles.

Its alcoholic solution has an alkaline reaction ; it neutralizes sulphuric and muriatic acid, forming salts which are very freely soluble in water. The muriate is amorphous ; the sulphate crystallizes with difficulty in hexagonal scales and short prisms.

The platinum salt is a yellow amorphous precipitate, readily soluble in water, and therefore obtainable only from the concentrated solution of the muriate. Its behavior to chloride of gold is likewise very characteristic ; the solution of the muriate produces with it a yellowish white precipitate, soon acquiring a purple color and separating gold, while the supernatant liquid assumes a purplish red, afterwards a brownish color. Ferric chloride shows no characteristic reaction.

Dilute acid solutions of quinamina have not the slightest fluorescence. With regard to its solubility in ether, it might be placed be-

tween quinia and conchinin (quinidia); but it does not, like these alkaloids, produce a green color with chlorine and ammonia. The addition of chlorine causes the solution to turn yellowish, and on supersaturation with ammonia, a yellowish amorphous precipitate occurs.

Concentrated sulphuric acid dissolves the new alkaloid colorless; on heating the solution turns yellowish and brown. Concentrated nitric acid produces a yellow solution, which becomes orange-red and finally colorless. The alkaloid fuses at 172° C., congealing on cooling, radiatedly crystalline, if the application of heat has lasted only a short time, when longer applied it turns brown and amorphous. The pure alkaloid has scarcely a bitter taste, unless combined with acids, when it is pretty bitter.

The amount of quinamina left on hand would be sufficient to determine its elementary composition, which, however, has been deferred until more can be prepared.

Compared with other alkaloids of the cinchonas, it resembles paytina in its behavior to chloride of gold; but the other properties of this alkaloid do not admit of its being confounded with quinamina.—*Berichte d. d. chem. Ges. zu Berlin*, 1872, *N.* 6.

ON WILD CHERRY BARK.

By Joseph L. Lemberger.

Query 43.—The cold infusion of wild cherry bark sometimes varies considerably in color. Is this due to the time at which the bark is collected, or to what other cause?

In investigating this subject, several ideas have suggested themselves:

1st. The probability that the season or month in which the bark is gathered may control the peculiarity we meet with.

2d. If such is the case, it must be due to some principle existing to a greater or less extent according to the time of gathering.

In order to do justice to the query, it became necessary to have the different seasons of the year represented in the bark to be examined, having no data at all upon the subject, although having frequently been examined, however, by some of our ablest pharmacists, with other objects in view. I therefore had carefully collected for me portions of the bark during every month of the year, bark of the root as well as of the tree or branches, and, after making an infusion, find a great diversity in the shades of color.

I have arranged them into three classes, *light*, *medium*, and *dark*, as follows:

Infusion of the Bark of the Tree of Wild Cherry.

	Light.	Medium.	Dark.
1st month	January.		
2d "			February.
3d "		March.	
4th "			April.
5th "			May.
6th "		June.	
7th "		July.	
8th "	August.		
9th "		September.	
10th "			October.
11th "			November.
12th "		December.	

The bark gathered in April, October and November form the darkest preparations, that of the months of January and August the lightest, whilst the bark of the remaining months form various shades of medium dark, that of the month of September seeming to be the darkest. The result of experiments with the bark of the root vary considerably from those with the bark of the tree, and as the color of the infusion is decidedly light or dark, I have arranged but two classes, the light being a pale straw color and the dark about the color of the darkest of the medium list of the bark of the tree.

Infusion of the Bark of the Root of Wild Cherry.

	Light.	Dark.
1st month	January.	
2d "	February.	
3d "	March.	
4th "		April.
5th "		May.
6th "		June.
7th "		July.
8th "		August.
9th "		September.
10th "		October.
11th "	November.	
12th "	December.	

The darkest seeming to be the months of May and October.

After precipitating the tannin out of the several infusions, and finding this principle to exist in the ratio of color, I have come to the conclusion, and give as the answer to the 43d Query, that the cause of the variance in the color of cold infusion of wild cherry bark is due to the existence of tannin in greater or less quantity, in proportion as the infusion is dark or light, and suggest that this difficulty or peculiarity can be avoided by due attention to the collection of the bark. —*Proceedings Amer. Pharm. Assoc.*, 1871.

THE CALABAR BEAN.*

By Dr. L. Vincent.

In a sojourn of nearly two years at the Gaboon, during which time he had opportunities of studying the numerous substances possessing medical properties produced in that part of equatorial Africa, Dr. Vincent's attention was particularly directed to the Calabar bean. It is used in that country, together with several other toxic agents, such as the *Icaza m'boundu*, the *Inee*, the *Alchiuse*, etc., by the tribes still plunged in barbarism and fetichism, for the compounding of their ordeal drinks. From a memoir giving the result of his inquiries we are enabled to glean the following particulars:

The first specimens of this drug were sent to Europe by English missionaries from Old Calabar, where the natives called it "*ésèré*." About ten years afterwards its botanical position was assigned by Professor Balfour, and at nearly the same time Dr. Fraser, of Edinburgh, while studying its physiological properties, discovered the remarkable property it possesses of contracting the pupil of the eye. In 1866 it was found in the French possessions in the Gaboon, not far from the banks of the rivers Como and Rhamboë. It is also found in abundance on the banks of the Ogo-wai; and as the physostigma prefers marshy and humid soils, it is probable that it occurs on the borders of all the rivers flowing into the Atlantic, from Old Calabar on the north to Cape Lopez on the south.

The Calabar bean is the seed of the *Physostigma venenosum*, Balf., which has been placed by Balfour in the *Leguminosæ*, sub-tribe *Euphaseolæ*, the only tribe of the *Leguminosæ* that contains poisonous plants.

It is a perennial woody climber, attaining sometimes a height of from forty to fifty feet. It twines from right to left round the neighboring trees, and in spite of any obstacles that may temporarily prevent its progress in this direction, it will after a time resume its course. The leaves are alternate, trifoliate, the middle leaflet ovate, very acute at the tip, regular at the base, stipulate, the lateral leaflets unsymmetrical. There are also two short stipules at the base of the general petiole. The flowers are disposed in clusters, and rose-colored, with magnificent purple veins. The calyx is unequally five-toothed; the corolla papilionaceous with vexillary æstivation; stamens

* Journ. Pharm. et de Chimie [4], vol. xv, p. 109.

ten, perigynous and disposed in two fascicles, one consisting of nine stamens and the other of one vexillary stamen; anthers bilobed, introrse, and dehiscing by two longitudinal slits. The ovary is stipitate and surmounted by a very long style, bearing a globular stigma, the surface of which is slightly hairy and covered with conical papillæ. Immediately below the stigma, on the convex part of the style, is a prominence having the shape of a falcate crest, which Professor Balfour appears to have looked upon as empty and vesicular, and therefore named the genus "*Physostigma.*" The author, however, asserts that this prominence is full, and cannot be said in any way to justify the designation. The fruit is a pod 4½ inches to 6 inches long, attenuated at both ends, a little compressed at the sides, bluish in color; the valves are thickish, striated and rugose on their external surface, and smooth on their internal face, which presents in the intervals between the seeds a sort of whitish cellular tissue. Each pod contains two or three seeds, most commonly two. The seeds, which are the active part of the plant, for neither the leaves nor the stems are poisonous, are oblong, convex, and slightly reniform, a character which is more marked in the beans proceeding from Ogo-wai than in those collected in the neighborhood of the Como and Rhamboë. They are from one to one and a quarter inch long and about two-thirds of an inch broad. The hilum, which surrounds nearly half the circumference of the bean, has the appearance of a long cicatrice, bounded by a slightly projecting line; is reddish and divided into two equal parts by a furrow that runs its entire length. The external tegument is testaceous, rather rough, and of a chocolate brown color. In the interior is found a large fleshy embryo, with conical radicle accumbent to the cotyledons, which are ellipsoidal, hard, white, plano-convex, perfectly joined to each other at first, afterwards retracting, and leaving between them an empty space that constitutes a kind of central cavity.

Chemical analysis and microscopical examination have shown that the nucleus is formed of loose cellular tissue, containing large granules of amylaceous matter. These starch grains are oval or reniform, or sometimes assume the form of parallelograms with rounded angles; the margin is sometimes toothed. The spermoderm contains several coloring matters, which have recently been studied by M. Grassi, who thinks they might be utilized in the dyeing of silk. The active principle of the bean is the alkaloid discovered in 1864 by Jobert and

Hesse, which has been variously designated physostigmine, calabarine, and eserine, from the name *ésére* given to the plant by the Cameroons. It is amorphous, brownish-yellow, nearly insoluble in cold water, rather soluble in ammonia, carbonate of soda, ether, benzine, and alcohol. Its solutions in acids are generally deep red, but sometimes intensely blue.

The plant is also called by the Gaboonese *n'Chogo*, and by the Fans, *d'Itounda.* By the last-mentioned people the bruised seeds are made up into an ointment with palm oil, or some other excipient, and used to rid their bodies from the parasites with which they are covered.—*Pharm. Journ., Lond., May* 11, 1872.

THE SO-CALLED AFRICAN SAFFRON.

By John R. Jackson, A.L.S. (Curator of the Museums, Kew).

From the description of the so-called African Saffron by Prof. Maisch,* there seems no doubt but that the flowers are those of *Lyperia crocea*, Eckl., a scrophulariaceous plant of South Africa, small quantities of which have been imported into this country from time to time, chiefly for use as a dye. The following description of the plant and its uses is given by Dr. Pappe in his "Floræ Capensis Medicæ Prodromus":

"A little branchy shrub. Leaves very small, wedge-shaped, fasciculate, obtuse, entire, smooth. Peduncles elongated, axillary. Flowers sub-racemose, yellow. Tube of the corolla much longer than the calyx. This bush deserves notice as a drug; and in all probability will, before long, become an article of colonial export. It grows abundantly in some parts of the Eastern districts, whence it has found its way into the dispensary. The flowers, which are called *Geele bloemetjes*, closely resemble saffron in smell and taste; they possess similar medical properties, and as an antispasmodic, anodyne and stimulant, ought to rank with the *Crocus sativus.* Here, they have as yet been only used with success in the convulsions of children, but they deserve a more general trial. On account of the fine orange color which they impart, they are in daily request among the Mohammedans, who use them for the purpose of dyeing their handkerchiefs. This drug has been observed to be sometimes adulterated by the admixture of other plants of the same genus which are less efficacious."

* See Amer. Journal of Pharmacy, 1872, page 110.

About thirty species are recorded of the genus, all natives of the Cape Colony, and the flowers are mostly yellow or purple, always turning black in drying.—*Pharm. Journ., Lond., May* 11, 1872.

AMERICAN HELENICÆ (SNEEZE WEEDS.)

By J. M. Bigelow, M. D.

Read before the Detroit Academy of Medicine, Feb. 27, 1872.

1. *Helenium autumnale*, Linn.—Grows all over the United States, from Maine to Florida, Texas, New Mexico, California and Oregon. In part 3 of the United States Dispensatory, Wood and Bache speak of it as being a good sternutatory. Rafinesque, in his Medical Flora, giving an account of the plant, says it is tonic, febrifuge and errhine, and, on the authority of Clayton and Schoepf, says it has been used in intermittents. Prof. Diesbach, of Heidelberg, ranks it among the febrifuges. It is known and employed all over the country as a valuable errhine. The whole plant, reduced to a powder, acts as such, but the flowers, especially the central florets, are more powerful. Dr. Benj. Barton, of Philadelphia, has highly extolled it as a substitute for the more acrid errhines, either alone or united with other ingredients. It may be used in diseases of the head, deafness, amaurosis, headache, hemicrania, rheumatism and congestion of the head and jaws. The shocks of sneezing are often useful in these cases when other remedies hardly avail. Cattle never eat it.

2. *Helenium parviflorum*, Nutt.—Found in Georgia and probably in other Southern States. It is a very distinct and well marked species, but scarcely bitter to the taste.

3. *Helenium tenuifolium*, Nutt.—Fields and roadsides of Mississippi, Louisiana and Arkansas, where it is a common and troublesome weed. According to Dr. Hale, it imparts a bitter taste to the milk of cows that feed upon it. The plant is also found in Texas, New Mexico and Sonora. It is the plant referred to by Drs. Galloway and Lewis, of Kosciusko, Miss. That it possesses powerful poisonous properties will appear from their statements, which we take the liberty of adopting in their own words. Dr. Galloway says:

"The first effect that is observable after a horse or mule has swallowed a bit of the weed, is a twitching of the eyes and a dodging of the head, as if to avoid some imaginary blow. I suppose this to be caused by flashes of light or some similar disturbance of the vision.

This is followed by twitchings of the muscles in other parts of the body, which increase in frequency and severity until they pass into general convulsions of such violence as to throw the animal upon the ground. The spasms recur at intervals of a few minutes, and in most cases terminate in the death of the animal, unless timely remedies are employed. The convulsions are of an atonic character, and on their cessation the animal breaks out in a very profuse perspiration. In the intervals between the spasms, the animal will eat greedily. The remedy consists in the prompt administration of lard or oil in some form. The first effects are observed within fifteen or twenty minutes after the weed has been swallowed. The active properties seem to reside chiefly in the top or bloom of the plant. I have seen sheep eat with seeming impunity the young plant. On the other hand, cattle are not unfrequently poisoned in the late fall or winter by eating the dried weed, after it has been killed by the frost. It is very rarely that stock raised here will bite it, even when hitched within its reach, unless very hungry and restless. Horses raised in Tennessee, Kentucky or Texas are often poisoned by it. A few years ago a gentleman passed through this place with a drove of ponies, about twenty-five in number, from Texas. He arrived about noon, and remained until four o'clock P.M., when he started forward for a watering-place five miles distant. The animals, meanwhile, in feeding in the open lots and grounds around the town, had picked up so much of the sneeze weed that eleven of them died before reaching the watering-place.

"A very small quantity of the sneeze weed suffices to cause death in an animal. Its effects on the human economy appear to be equally deleterious. A few years ago a neighbor of mine had some flour prepared from wheat that had been threshed in a lot in which the sneeze weed grew. A biscuit made from this flour and eaten without butter, produced in a lady general nervous twitching. Two other members of the family partook of the biscuit, but ate freely of butter with it, and escaped any unpleasant symptoms. Four negroes eating of the same biscuit, without butter, were all poisoned. They presented the same phenomena of spasmodic action of the muscles, accompanied with more or less delirium and loss of consciousness. A small sack of the flour was sent by this gentleman to his sons in the army, before its poisonous character had appeared, and all who ate of it were affected in a similar manner."

Dr. Lewis writes: "In 1866 a squad of Federal cavalry was sta-

tioned at Goodman, Miss. Many of their horses died from eating sneeze weed; some recovered by the use of oil." He moreover says that the soldiers firmly believed that a fatal case occurred in a patient to whom a strong decoction of the weed had been administered by the surgeon in charge. Little, or, at least, limited, reliance can be placed on the authenticity of this case, as it was only the opinion of the soldier in attendance. Dr. Lewis, however, fully confirms the fact of powerful effects of this plant, and believes that its active principle may be isolated and prove valuable in a variety of nervous diseases, when properly investigated.

4. *Helenium puberulum*, D. C.—California and Sonora.

5. *Helenium quadridentatum*, Labill.—Louisiana, Mississippi and Arkansas.

6. *Helenium microcephalum*, D. C.—Eastern and Western States and Texas.

7. *Helenium Mexicanum*, H. B. K.—California.

8. *Helenium Bigelovii*, A. Gray.—California; a very distinct and marked species, the handsomest and most ornamental of the genus.

9. *Helenium Hoopesii*, A. Gray.—Colorado, California and Nevada.

Nothing is known respecting the properties of the six last species, but from what is known of numbers 1 and 3, it may be safely inferred that some of them, at least, possess active medicinal principles, and are worthy of a better analysis than has been accorded to those already known.—*Detroit Rev. of Med. and Pharm.*, *May*, 1872.

SUBSTITUTION OF CARBOLIC OR PHENIC ACID FOR CREASOTE.

Communicated by Mr. T. N. R. Morson.

The value of the wood creasote of Reichenbach as a remedial agent, and its employment in the preservation of articles used as food, has been fully proved during the forty years we have been manufacturers of this article.

Of late years its reputation has suffered from the substitution of carbolic or phenic acid for true creasote; and as no good test to distinguish these bodies has been published (and those of our Pharmacopœia are for this purpose useless), we shall feel obliged by your publishing a very simple means for distinguishing these two bodies, which my son, Mr. Thos. Morson, has discovered in making some ex-

periments on adulterated samples submitted to us. The test is glycerin, in which true creasote is *insoluble, or nearly so.* Carbolic or phenic acid, on the contrary, *dissolves in all proportions,* and any large amount of this latter substance, if mixed with true creasote, will render the creasote soluble.

The danger of substituting carbolic or phenic acid for creasote to be used internally for food is well known.

To test a suspected sample, mix it with an equal quantity of pure glycerin. If they unite and make a clear solution, the substance is carbolic acid, or in greater part consists of it.—*Pharm. Journ., Lond., May* 18, 1872.

HOW TO DETECT ADULTERATION OF OILS.

The following instructions for the detection of adulterated linseed and refined rape oils, drawn up by Messrs. Blundell, Spence & Co., may prove very useful to many of our readers who wish to possess either article perfectly genuine:—

"Rosin oil is exceedingly heavy, having a sp. gr. of 0·989 (the gravity of pure linseed oil is about 0·935). Fischer's oil balance is a convenient instrument for comparing the density of oils. The following table shows the results of a few experiments:—

	Fischer's oil balance.	Gay-Lussac's alcoholom'r.	Sp. gr.
Pure linseed oil,	29° to 30°	50°	0·935
Linseed oil containing 5 p. c. rosin oil,	27° to 28°	49°	0·939
" " 10 " "	25° to 26°	47½°	0·943
" " 20 " "	23° to 24°	46°	0·947
Rosin oil,	—	·6°	0·989

If the sample of oil is below 29°, the presence of rosin oil may fairly be suspected, and the following confirmatory tests should be applied:—Put about a quarter of an ounce of the suspected sample into an ounce vial, and add pure linseed oil till it is about three-quarters full. If the sample under examination contains rosin oil, the pure linseed last added floats on the top, the line of contact being plainly visible. If the finger be now placed on the mouth of the bottle, and the latter inverted two or three times, and held up to the light, bright wavy streaks will be observed, caused by the slow mixing of the two oils. Even five per cent. of rosin oil may easily be detected in this way. Place a slab of clean glass on a piece of white paper, at one end put

from ten to twenty drops of a known sample of pure linseed oil, at the other an equal quantity of that suspected; to each add one drop of oil of vitriol. On the pure linseed oil a dark-brown spot slowly forms; if the suspected sample contains rosin oil, a dark reddish-brown spot quickly forms, retaining its red color for a long time, and a peculiar scum forms over it. Rosin oil may be detected in boiled linseed oil in a similar manner, and with the same certainty, the reactions being more rapid. A sample of genuine boiled oil must be used for the comparison. The rosin oil used in adulterating linseed oil is half the price of the latter; it is free from smell even when heated; it has a peculiar metallic taste, which is not masked by the linseed oil. It greatly retards the drying properties of linseed oil, causes it to remain 'tacky' for some time, and prevents it ever becoming hard."

To detect the Purified Mineral Oil used in the Adulteration of refined Rape (Colza) Oil.—The mineral oil is rather lighter than rape oil, having a specific gravity of 0·902 (the gravity of refined rape being about 0·914). When mixed with rape it may be detected by a slight but peculiar smell on gently heating, and by a slightly disagreeable taste. It imparts the opalescent appearance peculiar to all earth and mineral oils. Bright wavy streaks may also be seen when an adulterated sample is mixed with a pure sample, as described above, but in this instance the pure oil should be added first. Place a slab of clean glass on a piece of white paper, at one end put from ten to twenty drops of a known sample of refined rape, at the other an equal quantity of that suspected; to each add one drop of oil of vitriol. On the pure rape a pale yellow spot slowly forms, throwing out dirty orange streaks; on the adulterated sample a reddish-brown spot quickly forms. Mineral oil interferes greatly with the burning of refined rape, causing smoke and great deposit on the wick.

Detection of Mineral Oils in Fatty Animal or Vegetable Oils, and vice versa.—The distinction of coal oil from animal and vegetable oil is not very difficult, from the fact that mineral oils cannot be saponified, as the following experiment will show. Boil the oil with caustic soda liquor until it is saponified; the soap resulting from it is to be evaporated in a water bath, and the residue treated with ether or petroleum spirit. The soap will be insoluble, while the coal oil, if such was mixed with the oil to be tested, will be soluble in the ether or petroleum spirit. The latter is to be evaporated carefully in a gradu-

ated cylinder, and, as the coal oil boils at a much higher temperature than either ether or petroleum spirit, the former will remain in the glass cylinder, while all the ether or petroleum spirit will be evaporated. The best way for evaporating the ether or spirit will be to put the glass cylinder containing the same in a vessel with hot water. —*American Chemist, May,* 1872, *from The Oil Trade Review.*

NOTES ON AMERICAN ASPHALTUM.

By Prof. J. S. Newberry.

All my observations on asphalts have resulted in the conviction, that without exception they are more or less perfectly solidified residual products of the spontaneous evaporation of petroleum. In many instances the process of the formation of asphalt may be witnessed as it takes place in nature, and in our oil stills we are constantly producing varieties of asphalt. These are, in some instances, undistinguishable from the natural ones, and in general differ from them only because our rapid artificial distillation at a high temperature differs from the similar, but far slower, distillation that takes place spontaneously at a low temperature.

Asphaltum occurs in America, as does petroleum, in an immense number of places—so many that I cannot enumerate even one-half of those known to me. I will, however, notice a few of the most interesting. The asphalt from these various localities exhibits great diversity of physical character, and some, of chemical composition. These differences are doubtless, in part, due to differences in the petroleums from which they have been derived. The greatest noticeable diversity is, however, probably due to difference of age, and is a record of the slow but constant changes which time affects in these, as in other organic compounds.

Among the most important of our asphaltic minerals are the Albertite and Grahamite; the first from New Brunswick, the second from West Virginia. Both these are found filling fissures, opened across their bedding, in strata of carboniferous age. The geology of the districts where these deposits occur, has been described by Professors Dawson and Lesley, and it is unnecessary now to repeat the details which they have given. Suffice it to say that the fissures filled by both the Albertite and Grahamite mark lines of disturbance, where the strata are more or less tilted and broken, and where oil springs

abound. There is little room for doubt that in each instance the fissures which contain the asphalt have afforded convenient reservoirs into which petroleum has flowed, and from which all the lighter parts have been removed by evaporation. A large number of similar deposits, though of less magnitude, are known to me, all presenting the same general features. Among these I may mention a nearly vertical bed in the mountains west of Denver, in Colorado. This is a fissure filled with an asphalt which I submitted to Prof. Henry Wurtz for examination, and which he has shown to be not essentially different from Grahamite. On the banks of the Arkansas, south from Denver City, a number of smaller fissures, cutting cretaceous rocks, are filled with a similar asphaltic mineral. In the great Devonian black shale of Ohio and Kentucky (Huron Shale), fissures cutting across the bedding of the formation filled with Albertite, occur near Avon Point, Lorain Co., Ohio, and Liberty, Casey Co., Kentucky. Petroleum flows from this formation nearly everywhere along its line of outcrop. The asphalt from all the localities I have cited is hard, bright and brittle, and seems to be the product of very long continued and complete spontaneous distillation and oxidation.

In southern California, western Canada, central Kentucky and Chicago, &c., asphaltum may be seen in the process of formation from petroleum. In Enniskillen, Canada, an abundant flow of dark and heavy oil has produced large accumulations of more or less perfectly formed asphalt at the surface. These are locally known as gum beds. They attracted the attention of Mr. Williams in 1860, when the distillation of oil from cannel coal, bituminous shales, etc., was expanding into an important industry, and he established an oil distillery there for the use of this material. On cutting through the crust of solidified asphalt, semi-fluid and finally fluid petroleum was met with, afterwards these oil springs yielded immense quantities of petroleum. In Butler Co., Kentucky, the central member of the lower carboniferous group, is saturated with petroleum. This flows out from the cut edges of the formation in the valley of Green river and its branches, forming sheets of mineral tar and ultimately asphaltum, which cover the exposed surfaces of the rock. The quantity of asphaltic material in this vicinity is large, and it may some time be utilized for road making in the same manner as the Syssel asphalt.

In southern California, the accumulations of asphalt on the coast of Santa Barbara, San Luis Obispo, &c., have attracted the notice of

all travellers who have visited that region. The asphalt is here plainly inspissated petroleum. It drips from the cliffs at many points, and forms a scum on the ocean off the coast. There it is evaporated and oxidized, then thrown upon the beach by the waves, where it accumulates in large masses, generally mingled with sand and other foreign matter. When pure, the asphalt of California resembles that from Trinidad, and is beginning to be used for the same purposes—roofing, paving, lining of cisterns, &c. The wants of the entire western coast can be easily supplied from this source. About Chicago, Illinois, the Niagara limestone is in some localities completely saturated with a thick petroleum, which on exposure is converted by evaporation into asphalt. There are no important asphaltic accumulations here, and it is perhaps a little doubtful whether the hydrocarbon which fills the limestone is not too oily to serve the same purposes as the bitumen in the limestone of Val de Travers. But I know of no asphaltic limestone which approaches nearer to the foreign variety now so largely used, and it is quite possible that with appropriate treatment others may be utilized in the same way.

The above list includes all the important deposits of asphaltum in our country of which anything definite is known. At various points in the far west, occur what are known as "tar springs," really oil springs, around which more or less asphaltum accumulates as the result of evaporation. In Texas, south from Shreveport, a pitch lake is spoken of, in which are said to occur large quantities of bitumen. But of this almost nothing is known.

In anticipation of a great demand for asphaltum for the uses to which it is so extensively applied in Europe, I have endeavored to ascertain the quality and quantity of all the asphaltic materials found in our country, and with the exception of the Albert mine, have visited all of the localities described in the above notes. The result of my observations has been the conviction, that aside from the Albertite and Grahamite, which from their peculiar character will but partially supply our want of asphaltic material, we must look to Trinidad as a source from which we are to obtain the greater part of our asphalt. The quantity existing there is inexhaustible. The quality is such that it will with proper treatment do all that asphalt will anywhere do, and it is so accessible and transportation to our seaports so inexpensive, that it should be furnished from this source to our Atlantic cities, at a much less price than asphalt brought from any point in the interior must cost.—*American Chemist, May*, 1872.

ON A PROPOSED METHOD OF ESTIMATING ETHYLIC ALCOHOL WHEN PRESENT IN METHYLIC ALCOHOL.

By M. Carey Lea, Philadelphia.

While engaged in the study of some methyl compounds, I met with a method, which has been recently published in England, for effecting the above object with approximate correctness. As any simple means of accomplishing this result would be useful, I have made an examination of the proposed method, which is as follows:

Methylic oxalate is first to be prepared from the specimen of methylic alcohol to be examined, by distilling it with sulphuric and oxalic acids. After separating the methylic oxalate from the distillate, its melting point is to be determined, and this melting point is affirmed to fix approximately the quantity of ethylic alcohol present, the melting point being lower in proportion to the ethylic alcohol contained in the methylic.*

This was tested as follows:

1. Some good wood-spirit, which I had distilled over caustic soda, was heated with oxalic and sulphuric acids, and the crystals of methylic oxalate separated from the distillate. It was not stated whether the melting point of the crystals was to be taken while they were still wet, or after drying. Apparently the first was intended; I tried, however, in both ways.
2. The adhering liquid was squeezed out as completely as possible with a spatula, the mass was liquified by heat, and a thermometric bulb placed in it.

   Crystals first appeared at . . . 102° F.
   The liquid became thick with crystals at . 100° F.
3. The crystals were next taken out and dried on blotting paper; as soon as dry were tried again. Result:

   Crystals first appeared at . . . 128° F.
   The liquid became thick with crystals at . 127° F.
4. Nine volumes of the same wood-spirit were next mixed with one volume of 95 per cent. (by vol.) alcohol, and the experiment repeated.

* A table has been given to show the relation:

Per cent. of ethylic alcohol,			0	Methylic oxalate solidifies at or about			104° F.
"	"	"	5	"	"	"	95°
"	"	"	10	"	"	"	86°
"	"	"	15	"	"	"	76°

5. The crystals of methylic oxalate were freed from adhering liquid as far as could be done by pressure, the mass was liquified, and as it cooled,

Crystals first appeared at	98° F.
The liquid became thick with crystals at .	97° F.

6. These crystals were dried as before, and then fused and cooled.

Crystals began to form at . . .	128° F.
" became thick at . . .	127° F.

It thus appears that the melting point of the crystals, if they have been dried on blotting paper, is precisely the same whether prepared from methylic alcohol nearly pure, or containing about ten per cent. of ethylic alcohol. So that no inferences can be drawn from this.

When the crystals have been simply squeezed, the congealing point appears to be lower when ethylic alcohol has been present, and when, consequently, the liquid which moistens the crystals contains ethylic oxalate. But it seems evident that the congealing point will depend quite as much upon the purity of the wood-spirit, so that two operators working with the same materials would be apt to get quite different results.

Accordingly, the congealing point attained at (5) compared with the table would indicate the presence of 3–4 per cent. of ethylic alcohol, whereas there was present about ten per cent. This conclusion is to be regretted, as the method, if reliable, would have been valuable.—*Amer. Journ. Sci. and Arts, May*, 1872.

OLEATES OF MERCURY AND MORPHIA.

In a Clinical Lecture recently delivered by Professor John Marshall, F.R.S., in the University College Hospital,* he drew attention to the fact that mercurial ointment, which is itself the basis of other mercurial preparations, is merely a mechanical mixture of minute globules of mercury; and said that he had long thought that if a solution of mercury in some oleaginous or unctuous medium could be employed, more immediate and satisfactory results would be obtained from the well-known therapeutical powers of this ancient remedy. In seeking for his object he first dissolved some of the perchloride of mercury in a small quantity of ether, and added to it about four times

* Reported in the "Lancet," May 25th, 1872.

the amount of oleic acid; but found that this combination freely used on the skin produced much irritation, unless it was employed in too dilute a form to be of service as an absorbent. In Gmelin's Chemistry there is a short account of certain metallic oleates formed by double decomposition; but with this as a guide, he failed to obtain any satisfactory oleate of mercury. Mr. Frank Clowes, to whom he then referred the chemical question, soon discovered that, although the ordinary sublimed scales of red oxide of mercury were with difficulty dissolved in oleic acid, the oxide, precipitated by caustic potash or soda from a solution of the metal in nitric acid (which is a yellow impalpable powder) is, when recently made and well dried, readily soluble in oleic acid, especially when aided by a temperature of about 300° F. At Professor Marshall's request Messrs. Hopkin and Williams have since studied the subject pharmaceutically, and have succeeded in preparing oleate of mercury, and certain solutions of that salt in oleic acid. The strength of the preparations made by them is indicated by the percentage of the oxide of mercury which they contain. The 5 per cent. solution is a perfectly clear pale yellow liquid, resembling olive oil, but thinner; the 10 per cent. solution is also fluid and perfectly clear, but as dark as linseed oil; whilst the 20 per cent. preparation is an opaque yellowish unctuous substance, closely resembling in appearance resin ointment, melting very readily at the temperature of the body, and forming a kind of transparent, viscid, colorless varnish when applied to the skin. The chief care to be observed in the manufacture of these solutions is not to hurry the process, and not to employ a high temperature, or the mercury will be immediately reduced.

Unlike the mercurial ointment so long in vogue, which is a crude, gross, unscientific mixture, very dirty and very wasteful, because so small a proportion of its mechanically admixed mercury is but slowly absorbed, these solutions of oleate of mercury are cleanly and economical in use; and as the diffusibility or penetrating power of oleic acid is much greater than that of ordinary oils or fats, and as each one-thousandth part of even a minim of these new preparations contains its proper modicum of mercury, they are absorbed by the skin with remarkable facility and manifest their remedial effects with great promptitude. They should not be rubbed in like ordinary liniments or embrocations, but should be *merely applied with a brush, or be spread lightly over the part with one finger;* otherwise they may cause

cutaneous irritation, or even produce a few pustules on the skin, especially in certain persons. This result may, however, be obviated by the addition of a small quantity of olive oil, or purified lard, according as an oleaginous or an unctuous preparation is required. Any of these forms may be scented by the addition of essential oils.

In employing these mercurial solutions for combating persistent inflammation of joints, Professor Marshall soon found that the addition of morphia was of very great advantage. For this purpose the simple alkaloid must be used, as neither the hydrochlorate, the acetate nor the meconate is soluble in oleic acid. For every drachm of the solution of oleate of mercury in oleic acid one grain of morphia may be added. Being, as well as the mercury, completely dissolved, it quite as rapidly penetrates the skin, comes quickly into contact with the extremities of the nerves, and thus, even within a few minutes, acts upon them at their most sensitive points, and speedily produces a soothing effect.

The oleates of mercury and morphia, thus united in one preparation, represent, as it were, a liniment, ointment, or plaster of mercury and opium; but they are far more elegant, economical and efficacious. —*Pharm. Journ., Lond., June* 1, 1872.

THE CHILI SALTPETER DEPOSITS OF PERU.

In travelling eastward through Peru, from the sea to the Cordilleras, on the 20th parallel of south latitude, seven zones are crossed, the third of which, the Pampa of Tamarugal, and the fifth, Serrania Alta, or the inner chain (Upper Peru, or Bolivia), are explored for saltpeter. The treeless Pampa, a plain somewhat depressed in the center, has a very scanty vegetation, and the only thing which grows there is a single variety of lucerne grass (*medicago*); the cultivation of even this is attended with difficulty, on account of the large proportion of common salt, borax and saltpeter in the soil. It serves in part for the support of the beasts of burden used for transporting to the coast the salts and metallic minerals found here. In the south of the Pampa is a large deposit of borax, pieces of which weigh on an average from 100 to 200 grammes; soda saltpeter is found on the borders of Pampa and Serrania, but too far distant from the sea. On the western slope of the Cordilleras, salt is only found in small quantities; but in Upper Peru, where frequent rains wash it together into

great lakes, there are large quantities of it. The saltpeter mines consist of different strata. The surface of the ground is composed of silicates, sandstone and pieces of lime. At a depth of from 8 to 16 inches, very regular prisms are usually found, which sparkle with a mass of very small microscopic crystals; the strata below this, which is of rocky hardness, consists principally of common salt, with a little chloride of potassium and soda saltpeter, mixed with earth and pieces of silicates and carbonates, and has a thickness of 20 to 25 inches. Beneath this crust is the pure soda saltpeter, in more or less perfect crystals, from 20 to 40 inches long, and 3 to 7 feet in diameter. Guano is seldom found there, and only in small quantities; and it always occurs just below a stratum of salt. It is not in a powder, like that from the Chincha Islands, but adheres together, and is of a brown color, containing the bones and remains of birds and insects, and has an ammoniacal smell.

The chloride of sodium and lime present furnish mineral constituents required for the formation of the saltpeter. According to Thiercelin, the guano furnishes the nitrogen; but since the guano is always found below the salt crust, Kœnig is compelled to refer the nitrogen to some other nitrogenous organic bodies, from whose decomposition ammonia is formed, and this in turn is converted by the action of the air and organic bases into nitric acid. Besides the three substances named, all the conditions favorable to the formation of saltpeter are found in that neighborhood, namely, a pure, dry atmosphere, absence of rain to wash away the saltpeter when formed, and the regular night fogs. The latter, leaving the salt undissolved, dissolve the saltpeter and filter it through this stratum, under which it crystallizes.

The search for saltpeter is conducted thus: The workman recognizes its presence by certain undulatory elevations of the ground, and numerous lumps of lime and disintegrated sandstone. He bores a hole some 12 to 18 inches in diameter, going down till the mineral is plainly visible. When the lowest layer is reached, the hole is widened to about three feet, filled with charcoal and sulphur and fired. The explosion breaks and tears up the ground for twice that distance around, and then properly begins the bringing up of saltpeter. The crude article varies considerably in compactness, color and quality, and is named accordingly. The so-called sulphuret, which owes its name to its mode of manufacture, is the purest. The porous, earthy and the congealed are different in quality. If the raw product con-

tains less than 50 per cent., the mine is abandoned as not worth working; a yield of 70 to 80 per cent. is exceptionally good. The raw material is transported on pack animals or wagons to the factory, where it is refined in two different ways. One method is to break it up in pieces and put it in an iron kettle half full of water, which is then heated over fire for an hour, the insoluble matter removed and a fresh quantity of raw material added until the solution is saturated. The clear solution is run off into crystallizing vessels, the crystals collected when formed and allowed to dry in the sacks in which it is shipped. In the second method, steam heat is employed; the crude material is put in perforated iron baskets and suspended in boiling water, and the process repeated until the liquor is saturated. The salpeter prepared in this way contains less than one per cent. of common salt, while that obtained by the former method contains upward of two per cent. Large quantities of iodine are annually reclaimed from the mother liquors of the saltpeter works of South America.—*Scientific American, April* 27, 1872.

Varieties.

A Delicate Test for Phenol.—Landolt, wishing to detect the presence of phenol (carbolic acid) in a well-water from the vicinity of a gas-works, and finding that the ferric chloride test is only of moderate delicacy, and is interfered with even by normal salts, as sodium sulphate, made use of bromine-water. When used in excess, this reagent gives, even with a solution of phenol in 43,700 parts of water, an immediate bulky precipitate of tribromophenol. The odor of phenol cannot be recognized when the solution contains less than 1 of phenol to 2800 of water; and the color developed by ferric chloride appears only when there is more than 1 of phenol to 2100 of water. By this test, the presence of phenol may be shown in 500 c.c. of urine. It may also be used quantitatively,—*Amer. Jour. Science and Arts, May*, 1872, *from Ber. Berl. chem. Ges.*, iv, 770, Oct., 1871.

A New Test for Arsenic.—Bettendorff* has simplified Hager's method of testing for this substance, and, it would seem, has rendered it peculiarly suitable for testing pharmaceutical preparations for slight impurities from this element.

The method of testing commercial sulphuric acid for traces of arsenic will give a fair illustration of the author's process.

A small quantity of protochloride of tin, in a shallow dish, is covered with pure hydrochloric acid (1·12 sp. gr.) until it is dissolved. To this is added,

* Dingler's Journal, cciii, 385,

drop by drop, the sulphuric acid to be tested, the vessel being agitated at each addition. This addition will cause considerable heating, and if no arsenic is present the liquid will remain clear. If the arsenic is present in the smallest quantities the liquid will be colored first yellow, then brown, and finally a dark greyish-brown, becoming at the same time turbid.

The process, while far more readily carried out than Marsh's, is declared to be nearly equal to it in delicacy.—*Journal Franklin Institute, June*, 1872.

A New Use for the Aniline Colors.—Mr. F. Springmühl recommends the use of alcoholic solutions of various gums (shellac, sandarach, &c.), to which various aniline colors have been added, in coloring all kinds of paper, linen, &c.*.

The gum solution, which should be thin, penetrates entirely through the paper and gives to it an even tone. The operation is simply to place the coloring liquid in a shallow dish, and to draw the substance to be colored through it, which is subsequently hung up to dry; when dry another color can readily be produced upon one of the sides. Sandarach is said to produce matt; shellac and most other gums, a lustrous color. By adding to the lac solutions a small quantity of some ethereal oil, the substance may at the same time be perfumed. By judiciously mixing several of the lacs, any desirable tint can be produced. —*Journal Franklin Institute, June*, 1872.

Hydrofluoric Acid.—Mr. A. P. S. Stuart remarks that every one who has prepared hydrofluoric acid knows that sulphuric acid and fluor spar form an exceedingly hard, rock-like compound, and that it is very difficult to remove this from a platinum retort. The inconvenience may be avoided by mixing with the fluor spar about an equal weight of gypsum and the proper quantity of sulphuric acid. After the hydrofluoric acid has been expelled by heat, the mass in the retort is found to be of a pasty nature, and is easily removed by water.—*Scientific American, June* 22, 1872.

Action of Sulphuric Ether on Iodides.—E. Ferrière.—When to a solution of any iodide in water there is first added some starch solution, and this mixture shaken up with sulphuric ether, the following phenomena are observed: If the solution of the iodide is somewhat concentrated, a portion of iodine is set free, and the starch is colored blue; if the solution is weak, this coloration only sets in after some three hours; if the solution is very dilute, the blue coloration only appears after some two or three days. When the blue-colored starch is separated by filtration, and there is added to the filtrate another dose of ether, the blue coloration again appears, all the iodine being at last driven from its combination; chlorides and bromides are not thus acted upon. The author attributes this decomposition to the slow but continuous formation of an unstable iodhydric ether ($C_4 H_5 I$), but the experimental proof of that reaction has not been found by him.—*Chem. News. May* 31, 1872.

Apomorphine—A New Remedy.—It appears that the *Materia Medica* is about to be enriched by an important remedy—apomorphine, an emetic appa-

* Zeitschr. f. Farberei, 1871, No 41.

rently superior to all which have been used before. Two published investigations about the physiological effects of this remedy are before us: one by V. Siebert, of Dorpat ("Investigations on the Physiological Effect of Apomorphine"—*Archiv fuer Heilkunde*, xii, 6), and another one by Riegel and Boehm ("On the Emetic Effect of Apomorphine,'—*Deutches Archiv fuer Klinisehc Medicin*, ix, 2).

After it had already been prepared, in 1845, by Arppe and other chemists, Matthiesen and Wright, in England, have lately again, by treating morphine with hydrochloric acid, produced it as a hydrochloric salt, the base of which (apomorphine) has simply originated out of morphine by the escape of water, to-wit: $C_{17}H_{19}NO_3$ (morphine)—$H_2O = C_{17}H_{17}NO_2$ (apomorphine). The same chemists have given notice of its emetic effect.

Numerous experiments on animals and human beings have taught that apomorphine is a reliable and speedy emetic (acting within from four to sixteen minutes, according to Riegel and Boehm), which has no very disagreeable concomitant effects of any kind, but the great advantage of being well suited for subcutaneous injections—a quality not belonging to any other known emetic, and one of great importance in the treatment of children, lunatics, unconscious patients and other cases. Slight vertigo, heaviness of the head, inclination to yawn, and præcordial uneasiness of very short duration, are the only symptoms which so far have been observed to occur when administered, but they disappear as soon as emesis sets in. After-effects on the intestinal canal, like those of tartar emetic, or inflammation and suppuration at the point of injection, have never been observed. Its physiological effects on the pulse, temperature of the skin, etc., are of no practical importance. The quantity necessary for this effect by hypodermic injection is, in the human being, according to Siebert, 0·006 to 0·007 (about 1–10 grs.), and oscillates, according to Riegel and Boehm, between 0·03 and 0·04 (about ½ to ⅔ of a grain). The latter used a solution containing one per cent. for their preparations.

This preparation has principally been obtained from England (under the name of hydrochlorate of amorphia, from McFarlan & Co., Royal Medical Warehouse, 17 North Bridge, Edinburgh), as a pale, greenish-gray powder.—*Atlanta Med. and Surg. Journ., May*, 1872, *from Berliner Wochenschrift, Jan.*, 1872, *No*. 5.

Spilanthes Oleracea.—At a recent meeting of the Agri-Horticultural Society of Madras, a reference was made to the medicinal properties of *Spilanthes oleracea*, especially as to its use as a remedy for toothache.

Colonel Pears, who communicated the fact, says that it was administered on the recommendation of a native servant to a friend of his who was suffering from very severe toothache, and that it effected a perfect cure in a very short time. Dr. Hunter pointed out that the *Spilanthes* contains some acrid principle, and, when chewed, causes a copious flow of saliva. The use of such articles for the relief of toothache is of very ancient date in European medicine, the pellitory of Spain having long been used as a masticatory in cases of toothache, The *Spilanthes* is probably just as effective as the pellitory, and is, moreover, easily obtained in India.

The plant, which belongs to the *Compositæ*, is an erect, branching annual, growing about twelve or fourteen inches high, and having small yellow flower-heads at the ends of the branches. It is well known for the peculiarly pungent taste of its leaves, on which account it is frequently cultivated in some tropical countries for use as a salad and potherb. . It is known as Pará grass; in Japan it is called Ho Ko So.—*Med. and Surg. Reporter, June* 1, 1872.

Xylol.—Richard Moffett, M.D.—This is a new remedy,* recently discovered by a German chemist, and is used at the Royal Hospital in Berlin, in the treatment of small-pox. It is found in wood-tar and coal-gas naphtha. My first experience in the use of the remedy was in the following case. I was called to Mrs. Sophia H., a German woman, aged forty-two years, on March 27. She was suffering with preliminary symptoms of small-pox, which in a few days developed into the confluent form. My usual treatment failed to give any relief whatever, and she was fast sinking. On April 8 her pulse was 155, respiration 40, tongue brown, dry, and hard; the ends of her fingers and nails were purple, and her face was entirely covered with black scabs. The tonsils and parotid glands became so much affected that it was with the greatest difficulty that anything could be swallowed. She suffered from great restlessness, and was unable to obtain sleep even after taking large doses of chloral and morphia. Having obtained some of the new remedy,—xylol,—I determined to try it in her case. I gave her the following prescription:

℞.	Olei Xylol., ...	gtt. cc;
	Pulv. Acaciæ, ...	q. s.
	Syrupi Simplic.	
	Aquæ, *aa*, ...	f℥j.

S.—A teaspoonful every two hours.

I called the next day, and found her sitting up in bed. All the graver symptoms had disappeared. Her tongue was quite moist, pulse 98, respiration 22. She told me the medicine relieved her at once; and her husband said that after taking three doses she went to sleep, and slept for four hours.

April 14.—The patient is quite talkative, and can swallow without difficulty. From this time forward her convalescence was uninterrupted. At this date, April 19, she is able to go about the house, suffering only from a partial loss of the right eye. She was vaccinated when an infant, but bore no mark. I have tried this remedy in a number of cases since, and its use has always been attended with the most happy results.—*Philad. Med. Times, June* 15, 1872.

Cimicifuga Racemosa as a Preventive of Small-Pox.—Dr. G. D. Norris, at a recent meeting of the Alabama State Medical Association, "stated that during the prevalence of small-pox in Huntsville, certain families, at the instance of some one unknown, had resorted to the free use of the *tea of the Cimicifuga racemosa*, or black snakeroot of the United States Pharmacopœia (*cohosh*), as

* See Amer. Journal of Pharmacy, 1872, April, 172.

a preventive of small-pox. In the families using the *Cimicifuga*, there occurred no case of the small-pox, though some were exposed to the disease. In the same families, Dr. Norris vaccinated the members, but without effect so long as they continued the use of the cohosh; after ceasing to use the tea as a prophylactic, he again vaccinated them, when the specific effects of the vaccine virus were produced. He submitted the results in these cases as new, and not without interest to the profession."—*Med. News and Library, June*, 1872, from *Atlanta Med. and Surg. Journ., April*, 1872.

Old Rubber.—A fortune awaits the happy inventor who shall teach manufacturers to restore old rubber to the condition in which it was before vulcanization, for, with that secret there would be practically *no consumption* of this invaluable article. The thing has been done, and successfully, and we have ourselves, says the "Commercial Bulletin," seen pieces of vulcanized rubber possessing great strength and elasticity which were made entirely from old car springs; but it has never been accomplished on a large scale, and awaits the enterprise and ingenuity of some new Goodyear to develope it.

Meantime, old rubber has its uses. By a system of steaming and passing between rollers, it is reduced to a semi-plastic state, and in this condition is used in combination with a coarse fabric for heel stiffening, a purpose for which it is admirably adapted, its waterproof qualities being of especial value. There is, in a neighboring city, a factory devoted entirely to this branch of manufacture, where several hundred tons of old rubber of all kinds are consumed annually.

Old rubber is also largely used to mix with new raw material in the manufacture of all kinds of rubber goods. It serves to give bulk and weight, and if it does not increase, it certainly does not lessen, the strength of the fabric. It may also be mentioned that powdered soapstone, white lead, *terra alba*, and other heavy substances enter largely into the composition of almost all rubber goods, the use of which becomes apparent when it is remembered that they are generally sold by weight.—*Scientific American, May* 25, 1872.

The Use of Glycerin as a Solvent in Hypodermic Injections.—Dr. M. Rosenthal calls attention. in the "Wiener Medizinische Presse" for January 7, 1872, to the power which glycerin possesses to dissolve various of the substances which are ordinarily used in hypodermic medication. Its solvent powers are greater than those of water, and are very much increased by heat. Thus, a fluidrachm of glycerin, when heated, will readily dissolve twenty grains of the sulphate of quinia, from ten to twelve grains of the acetate or muriate of morphia, and ten grains of the extract of opium. Morphia may be added to a solution of quinia in glycerin without causing a precipitate. It will also dissolve from half a drachm to one drachm of the iodide or bromide of potassium, and four grains of corrosive sublimate. These substances are not precipitated as the liquid cools; on the contrary, the solution will remain clear and fit for use during at least a year.—*Boston Med. and Surg. Journ., June* 6, 1872, from *Med. Times.*

Cure of Hydrophobia.—Dr. Alford, at Flint, Mich., has cured a case of hydrophobia. The disease did not make its appearance until eight months after the patient was bitten. The treatment was this: Sulphate of morphia, one grain, was injected subcutaneously every four hours, and half a drachm of powdered castor given internally, in syrup, at the same time. Chloroform was also inhaled in small quantities. In about half an hour, sleep occurred, and continued over an hour. Convulsions then recurred, and continued, with intervals of variation, for about twelve hours, when they entirely ceased. Vomiting and great prostration followed, but the patient ultimately recovered. The excessive prostration was counteracted by wrapping the patient in a woollen blanket moistened with a warm solution of muriate of ammonia, twenty grains to the ounce.

Dr. Alford states that he had another successful case of cure of hydrophobia eight years ago.—*Scientific American, May* 25, 1872.

Coffee Roasting.—There is a considerable difference in the method of roasting the coffee berry in this country and on the Continent. In France, for instance, not only is the machinery used constructed with some amount of care for the purpose of securing the object desired—namely, the equal torrifying of the berries, but the persons employed in the operation have to possess a certain amount of technical skill, and a knowledge of the chemistry of the work they do. In France a roaster has to acquire a knowledge of the various coffee berries, for each different sort requires to be roasted a longer or shorter period than the other; and when it is remembered that, on the authority of those who have studied the subject, a few seconds only will make all the difference in the quality of the coffee, it will seem that this knowledge is important. Roasters have to serve some years before they are declared thoroughly competent, and the operation of roasting is always under the superintendence, if not of the actual care, of a tried and experienced man. The machinery in use is generally as follows: A hollow iron ball, turning on its axis, receives the unroasted berries. In it is a valve by which the escape of the gas, arising during the process, is regulated. This ball is turned over a fire and made to revolve somewhat rapidly. Its shape secures the equal contact of every berry with the hot metal. As soon as the berries are sufficiently roasted, the gas is let off, for if it were allowed to remain, the berries would absorb it, and the flavor be vitiated. The revolving motion is then continued until they are turned into the receptacle prepared to receive them. They are then kept in hermetically-closed tins until they are ready for use. In this country the process is much more a rule of thumb affair, and, with rare exceptions, all coffees are roasted alike, in cylinders, which are not capable ef roasting so equally as a ball, and but little attention is paid to the chemical effects of the roasting. Another bad feature prevails in England, and that is, the berries are ground by the wholesale dealers, and by the time the decoction reaches the breakfast table the best flavor of the coffee has been floated away in the air. In order to facilitate adulteration, coffee is usually ground very fine, which is another mistake·—*Good Health, March*, 1872, *from English Mechanic.*

Bread made with Sea-Water.—M. Rabuteau, after considering the effects of sea-water in large or small doses on the economy, thinks that bread made with it might be taken with advantage in dyspepsia, phthisis, and scrofula. The bread is extremely pleasant to the taste.—*Detroit Rev. of Med. and Pharm., May,* 1872.

A Fact for Non-Smokers.—A Dutch merchant, named Klaës, who was known among his acquaintances by the name of the King of Smokers, has just died near Rotterdam. According to the Belgian papers he had amassed a large fortune, and had erected near Rotterdam a mansion, one portion of which was devoted to the arrangement of a collection of pipes according to their nationality and chronological order. A few days before his death he summoned his lawyer, and made his will, in which he directed that all the smokers of the country should be invited to his funerel, that each should be presented with 10lb. of tobacco and two Dutch pipes of the newest fashion, on which should be engraved the name, arms, and date of the decease of the testator. He requested all his relatives, friends and funeral guests to be careful to keep their pipes alight during the funeral ceremonies, after which they should empty the ashes from their pipes on the coffin. The poor of the neighborhood who attended to his last wishes were to receive annually, on the anniversary of his death, 10lb. of tobacco and a small cask of good beer. He desired that his oak coffin should be lined with the cedar of his old Havanna cigar boxes, and that a box of French caporal and a packet of old Dutch tobacco should be placed at the foot of his coffin. His favorite pipe was to be placed by his side, along with a box of matches, a flint and steel, and some tinder, as he said there was no knowing what might happen. A clever calculator has made out that Mr. Klaës had, during his eighty years of life, smoked more than four tons of tobacco, and had drunk about 500,000 quarts of beer.

It is said, "exceptions prove the rule." This is decidedly a very strong exception, and will doubtless be often adduced as forcible evidence against "the poisonous effects of tobacco upon the system."—*Med. Press and Cir., May* 8, 1872.

Arabian Mode of Perfuming.—How the Arab ladies perfume themselves is thus described by Sir Samuel Baker in his work on the Nile: "In the floor of the hut or tent, as it may chance to be, a small hole is excavated sufficiently large to contain a champagne bottle. A fire of charcoal or simply glowing embers is made within the hole, into which the woman about to be scented throws a handful of drugs. She then takes off the clothes, or robe which forms her dress, and crouches over the fumes, while she arranges her robe to fall as a mantle from her neck to the ground like a tent. She now begins to perspire freely in the hot air bath, and the pores of the skin being open and moist, the volatile oil from the smoke of the burning perfumes is immediately absorbed. By the time the fire has expired, the scenting process is completed, and both her person and her robe are redolent with incense, with which they are so thoroughly impregnated that I have frequently smelt a party of women strongly at

full a hundred yards distance, when the wind has been blowing from their direction. The scent, which is supposed to be very attractive to gentlemen, is composed of ginger, cloves, cinnamon, frankincense, and myrrh, a species of sea weed brought from the Red Sea, and lastly the horny disc which covers the aperture when the shell fish withdraws itself within its shell. The proportions of these ingredients in this mixture are according to taste."—*Scientific American, June* 7, 1872.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The Twentieth Annual Meeting of the "American Pharmaceutical Association" will be held, in the city of Cleveland, on the first Tuesday (3d) of September, 1872, commencing at 3 o'clock P.M.

It is confidently expected that the hopes expressed at the last meeting will be fully verified, and a large number of applications for membership presented to the Association at this meeting.

The Local Secretary, Henry C. Gaylord, of Cleveland, will receive the goods intended for exhibition during the session, and druggists as well as manufacturers of chemicals and articles connected with pharmacy and its collateral branches, are respectfully requested to send the goods to be exhibited free of charge and accompanied by an invoice and a full description of the articles.

ENNO SANDER, *President.*

St. Louis, June 24th, 1872.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the Philadelphia College of Pharmacy was held at the College Hall, June 24th, 1872, Dillwyn Parrish, President, in the chair; 17 members present.

The minutes of the last meeting were read and approved. The minutes of the Board of Trustees were read by William C. Bakes, Secretary of the Board, and on motion were approved.

The following communication from the College of Physicians, referred by the Board of Trustees to the College, was read. After an interchange of views by the members on the *practical effects* of such cautionary provisions as are contemplated in the resolutions, the communication was, on motion, referred to a committee. To this service the Chair appointed Wm. Procter, Jr., Edward Parrish, Joseph P. Remington and William C. Bakes.

"*Preamble and Resolutions passed by the College of Physicians of Philadelphia, May 1st,* 1872.

"*Whereas*, cases of accidental poisoning and of the internal administration of medicines intended only for external use are so common; and, whereas, every possible safeguard should be employed to prevent such accidents, therefore

"*Resolved*, by the College of Physicians of Philadelphia, that it be recommended to all druggists to place all external remedies in bottles, not only colored so as to appeal to the eye, but also rough on one side, so that, by the sense of touch, no mistake shall be possible even in the dark.

"*Resolved*, that all bottles containing poisons should not only be labelled 'poison,' but also with another label, indicating the most efficient and convenient antidote.

"*Resolved*, that a copy of these resolutions be presented to the American Medical Association, to the College of Pharmacy of Philadelphia, and to the American Pharmaceutical Association, and that their assistance be asked in bringing about so desirable a reform. Signed,

"John H. Packard, M.D.,
"*Secretary of the College of Physicians of Philada.*"

The committee on deceased members read the following notice of their late honorary member, Prof. Samuel Jackson, M.D.

Prof. Samuel Jackson was born in Philadelphia, on the 22d of March, 1787. He early embarked in the drug business, in which, however, he was not successful; and the bent of his mind being toward scientific and professional pursuits, he became early connected with Associations for Medical Instruction, and in 1821 was elected Professor of Materia Medica in this College.

His lectures were fluent and suggestive; but in the department of Materia Medica there was less scope for his peculiar talents than in that of Physiology. In 1827 he resigned his Professorship in our College, though still devoting himself with success to medical education.

So high was his reputation that, in 1835, on the Chair of Institutes of Medicine being established in the University, he was elected its first incumbent. Here his reputation steadily increased, his clear and vigorous style, and the terseness and force of his language, drawing crowds of listeners to his lecture-room.

He published several works of value, of which his "Principles of Medicine," issued in 1832, was the most important. In 1856, he wrote an "Introduction to the American Edition of Lehman's Chemical Physiology." As a practitioner of medicine he was remarkable for the originality displayed in his prescriptions, in many of which the leading idea was an application of chemical principles to the treatment of diseased or enfeebled conditions. Dr. Jackson continued in active professional life until, a few years since, physical weakness and advancing years compelled his retirement. He died on the 4th of April, 1872, universally respected and honored by the medical profession, by pharmacists and the community at large.

The following communication was read, for information to the members of the College:

To the Philadelphia College of Pharmacy:

The Committee appointed at the last meeting of the Convention of the teaching Colleges of Pharmacy of the United States, held at St. Louis in September last, has agreed to recommend the following questions for discussion at the next meeting of the Convention, to be held in Cleveland, Ohio, in September next:

1. Analytical Chemistry. Is it essential for a thorough pharmaceutical education? If so, should it not be embraced in the curriculum of the Colleges

of Pharmacy, and how much time should at least be devoted to the lectures and to laboratory instruction?

2. Would it not be advisable that the questions at the examinations in writing for the degree of Graduate in Pharmacy be annually reported and, if deemed necessary, discussed by all the Colleges represented in the Convention of the teaching Colleges of Pharmacy, for the purpose of establishing, as nearly as may be possible, a uniform standard for graduation?

3. Pharmaceutical Degrees. In order to stimulate the acquirement of scientific attainments amongst graduates in pharmacy, is it not advisable to establish one or more higher degrees? If so, upon what basis ought such degrees to be conferred?

For the Committee, JOHN M. MAISCH.

The following delegates were elected to represent the College at the next session of the American Pharmaceutical Convention, to assemble in Cleveland, Ohio, on the 3d of September next, viz.: Wm. Procter, Jr., Prof. John M. Maisch, Prof. Edward Parrish, Joseph P. Remington, Edwin McC. Boring.

On motion, the following Committee was appointed to confer with the Corresponding Secretary regarding the certificates of corresponding and honorary membership in this College, which there is reason to believe have miscarried, and with the Secretary to take such action on the subject as they may deem expedient, viz.: Wm. C. Bakes, John M. Maisch, Samuel S. Bunting.

On motion, then adjourned. CHARLES BULLOCK, *Secretary.*

Pharmaceutical Colleges and Associations.

THE NEW YORK COLLEGE OF PHARMACY has elected the following five gentlemen to constitute the Board of Pharmacy, in accordance with the law signed by the Governor May 22d: Dr. Wm. Neergaard, Dr. W. Manlius Smith, Dr. F. Weissmann, Paul Balluff and Theobald Frohwein.

MARYLAND COLLEGE OF PHARMACY.—At the June meeting the Committee on Unofficinal Formulas made a verbal report through its Chairman, Prof. J. F. Moore, and read the formulas as far as adopted. On motion of Dr. J. Brown Baxley, the Committee was vested with plenary power to adopt and print at the earliest possible day. Two copies will be issued: a formulary, for the use of pharmacists; and a descriptive, concise catalogue, to be presented to members of the medical profession.

Prof. Moore presented, in the name of Mr. Chas. R. Beck, a beautiful specimen of taraxacum, pressed, mounted and framed. Mr. J. F. Hancock, on behalf of Prof. Jno. M. Maisch, presented samples of Chinese blistering flies (*Mylabris Cichorii*), which proved a great attraction. On motion, the thanks of the College were tendered to both donors.

Mr. Wm. S. Thompson's paper on "Pharmacy," read at the last meeting, was then called up, and discussed by Prof. Moore, Dr. J. Brown Baxley, and others.

After a few hours pleasantly spent the meeting stood adjourned.

The California Pharmaceutical Society has elected, on May 8th last, five pharmacists to serve for the next three years as the Board of Pharmacy, in compliance with an Act to Regulate the Practice of Pharmacy in the City and County of San Francisco, approved March 28, 1872. The Board has organized and consists of John Calvert, President; James G. Steele, Secretary; Wm. T. Wenzell, Wm. Simpson and J. W. Forbes. The registration commenced June 1st, at 521 Montgomery street, while the examinations are held at the rooms of the Pharmaceutical Society.

Pharmaceutical Society of Antwerp —The session held April 23d was mainly occupied by the report of Mr. F. Van Pelt on a memoir by Dr. Donato Tommasi, in which the author proposes to employ a solution of acetate of sodium as a solvent for iodide of lead; 5 c.c. of a concentrated solution of the former salt will dissolve in the cold 1 grm., and when hot 2 grm. of the iodide. This solubility may be taken advantage of in detecting insolube adulterations in the iodide of lead. For external application the following formula is proposed:

℞.	Concentrated Solution of Sodium Acetate, .	15 c.c.
	Glycerin, ...	23 c.c.
	Iodide of Lead, ...	0·40 grm.
	Rose Water, ...	a few drops.

Mix.

The General Pharmaceutical Association of Belgium met, April 28th, at the free University at Brussels, Mr. De Bauque presiding, and Mr. Vanden Heuvel acting as Secretary. The transactions were mainly of local interest.

Pharmaceutical Society of Paris.—At the meeting of May 1st, Mr. Lefort read a paper on belladonna, to demonstrate the practicability of preparing atropia from the leaves. (An abstract of the paper will be published in our next number.) In the following discussion attention was drawn to the dangerous results which may follow the administration of crystallized atropia, aconitia or digitalin, since they are much more powerful than the preparations heretofore employed in medicine. After hearing a report on the transactions of the Académie des Sciences, and on Duquesnel's observations on the sulphate of eserina (physostigmia), the meeting adjourned.

Editorial Department.

The Twentieth Annual Meeting of the American Pharmaceutial Association.—Elsewhere will be found the public announcement, by President Enno Sander, of the next meeting of this Association, which will be held in the city of Cleveland, Ohio, on the third of September next, at 3 o'clock P.M. The

pharmacists and druggists of that city have been at work for several months to give the Association a hearty reception, and to make this meeting as successful as the previous ones have been. The beautiful situation of Cleveland on the southern shore of lake Erie, and the splendid scenery, through which the visiting members will have to pass, in order to reach the place of meeting, will doubtless cause many to postpone their usual summer trips until that time, while, on the other hand, it is expected that the important matters which will be reported on and discussed, will render this meeting as interesting and profitable as the last.

In a short time the permanent Secretary will issue his usual notices to the members, in which the arrangements will be mentioned which he may be able to make with the different railroads.

The important feature of the exhibition connected with the meeting has likewise received proper attention, and members and others having objects of interest to the profession or the trade to exhibit, are requested to apply for space to the local Secretary, Mr. Henry O. Gaylord, at Cleveland, who will forward circulars on application, and take charge of the goods on arrival.

The Third Convention of the Colleges of Pharmacy will be held at Cleveland during the period of the approaching meeting of the American Pharmaceutical Association. In 1870, at the Baltimore meeting, the first convention was held, which was merely preliminary in its character, although several important questions were discussed. An organization was effected at the second convention at St. Louis, in 1871, and a committee, consisting of Professors J. Faris Moore and J. M. Maisch, was appointed, to propose, with the approval of the President, Mr. E. H. Sargent, a number of questions for the consideration of the third convention. Three subjects have been agreed upon, and were communicated to all the teaching colleges of pharmacy in the United States for their information in advance of the meeting. These questions are printed on page s28 and 330 of our present number.

An Act to Prevent the Sale of Drugs or Medicines Designed to Procure Criminal Abortion has passed both Houses of the Legislature of Illinois, and was signed by the Governor. It prohibits the sale of abortifacient drugs or medicines except upon the written prescription of some well-known and respectable practising physician, the prescriptions to be registered in a book kept for that purpose only. Medicines designed for the use of females, together with the formulas by which they are prepared, must be submitted, under oath, to five physicians in the county in which the medicine is proposed to be sold; if the physicians certify, under oath, that the medicine is not abortifacient, the medicine may be sold, if the dealer keeps a copy of the certificate and of the formula for the inspection of any person desiring to see the same. The fine for every offence is from fifty to five hundred dollars, or imprisonment for one to six months, or both.

The law is evidently intended to reach those murderous concoctions sold as "female pills," "golden pills," "periodical mixtures," &c., and inviting to com-

mit the crime of abortion by statements of their harmlessness, coupled with the caution not to take them during pregnancy. If the law is properly enforced, it will doubtless save the lives of many an innocent unborn that would have been murdered by these vile preparations, which were never found in a respectable pharmacy.

Collusions between Physicians and Apothecaries are possible in all communities; but to the honor of both professions we believe that they are of comparatively rare occurrence, at least in their more vulgar grades, the lowest one of which we regard the practice of writing prescriptions in a manner that they can be understood only by those apothecaries with whom the little arrangement has been made. This is done sometimes in obscure and unintelligible characters; at other times by the employment of more or less barbarous terms, or by the agreement upon certain formulas which are prescribed by names, perhaps correct enough as far as the preparation is concerned, but giving no clue of all the constituents, their nature or proportion.

We refer to this species of fraud upon two honorable professions and the suffering public, in consequence of a communication, by Mr. Adolph Mueller, of Highland, Ill., having been handed to the Editor by the Executive Committee of the American Pharmaceutical Association, to whom it was referred by the Association at its last meeting in St. Louis, want of time preventing its consideration. Mr. Mueller sent copies of several prescriptions, one of which reads thus:

℞. Ol. sol. acid. carb., ... ℥ij.

and then asks the following questions:

1. Is it not obligatory on the practising physician to use in his prescriptions a scientific language, intelligent to any educated pharmacist?

2. Is it admissible that prescriptions are written in secret characters, so as to be understood by those only who are in possession of the corresponding key?

3. Does not such a practice endanger the lives of the patients, and would it not, if generally adopted, be detrimental to the public welfare?

4. Is not, therefore, such a practice to be regarded as "malpractice," unworthy the professional physician and pharmacist?

5. Is there no legal way to prohibit such a practice on the part of unscrupulous physicians and pharmacists?

We leave it to our readers to answer these questions. An honorable man will not stoop to such means to increase his profits; if found out, the offender will not be tolerated, we think, in the various medical and pharmaceutical societies—the codes of ethics of all containing provisions against such actions. We have very little faith in the influence of legal restrictions upon such artifices, believing that the tactics would be changed so as not to come into direct conflict with the law; we expect by far better results from raising the professional standard of both professions, and therefore look with confidence towards improvement also in this respect, as one of the results which is likely to follow the conscientious administration of the pharmaceutical laws enacted in various parts of the country.

Potash in Corn-cobs.—Under this title, the Boston Journal of Chemistry, for June, contains a short paper, which, except by the very careful reader, is readily taken as original, and apparently refers to an analysis of the ashes of corncobs raised at Lakeside farm. It is, however, merely an abstract of the essay of Mr. Herbert Hazard, published on page 152 of our April number, and although the last half is copied verbatim from it, no credit is given either to the author or to our Journal.

Petroleum-benzine.—In copying our paper on "The Use of Petroleum-benzine in Making Oleo-Resins,"* the Editor of the Pharmaceutical Journal and Transactions says in a foot note:

"The application of the term benzine to this volatile spirit is objectionable, inasmuch as it is liable to cause misunderstanding. It is the more volatile portion of petroleum or paraffin oil, and would be better designated petroleum or paraffin naphtha."

As far as America is concerned, the adoption of this suggestion would be productive of confusion, since here the term petroleum naphtha is used to designate a still lighter and more volatile liquid than the one to which the name of benzine is applied; the former term (naphtha) is probably nearly identical with what in Germany is now called petroleum-ether. The adoption of scientific names for the various products of the distillation of petroleum, will be impossible as long as we are unable to obtain them in a state of purity, it being well known that all these liquids, as now met with, consist of mixtures of isomeric or polymeric hydrocarbons, differing in specific gravity and volatility. The adoption in the United States of the word benzine has been explained by the "Scientific American," in a paper which was copied into the "Chemical News" for May 17th, and with the prefix petroleum—to indicate its difference from the true benzine or benzole—we believe it to be as good and definite a term as petroleum naphtha or petroleum ether; or rather all these terms are more or less indefinite, since they are not applied to definite mixtures in definite proportions of the hydrocarbons, but rather to mixtures of lighter and heavier ones, having a certain density.

A Reliable Test for Creasote, which is at the same time easy of application, has been a desideratum for many years. We publish in the present number Mr. Morson's recently proposed test to distinguish creasote from carbolic acid by means of glycerin, in which the former is said to be insoluble, if pure. On examining a number of samples, one of which was known to be Merck's, we found them all miscible with an equal bulk of glycerin to a transparent homogeneous liquid, and hence we are forced to conclude either that all these samples contain more or less carbolic acid, or that Mr. Morson's test is based upon an erroneous observation, or that different creasotes differ in their behavior to glycerin. The latter view seems the most probable, since the difficulties encountered in isolating and separating the various constituents of creasote from each other are very considerable. Judging merely from the solvent powers of glycerin, we should have expected that it would dissolve a substance which, like creasote, is so readily soluble in alcohol and also soluble in water.

* American Journal of Pharmacy, May, 1872.

We shall wait with interest for further experiments with creasote of undoubted origin.

In a communication to the *Pharm. Jour. and Trans.*, of June 15th, Professor Fluckiger states that nearly anhydrous glycerin dissolves both carbolic acid and creasote to a transparent liquid, which, on the addition of water, remains clear with the carbolic acid, but becomes turbid if it contains creasote. Mr. Morson's observation, therefore, probably refers to a diluted glycerin.

Syrup of Phosphates of Iron Quinia and Strychnia.—A correspondent, who omitted to give his address, so that we could not communicate with him by letter, will find the original formula for this preparation in the "American Journal of Pharmacy," 1867, page 177, some remarks thereon on page 386 of the same volume, and a paper containing a modified formula on page 322 of the volume for 1868.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Constitution, By-Laws, Articles of Incorporation and Proceedings of the Third Annual Meeting of the California Pharmaceutical Society, held at San Francisco, October, 1876; also the Roll of Members. San Francisco: printed by Joseph Winterburn & Co. 1872. 8vo, 36 pages.

The pamphlet before us gives evidence that the pharmacists residing on the coast of the Pacific Ocean mean to take part in developing scientific pharmacy and to elevate our profession to that position which it ought to occupy. The legal incorporation of the Society; the part it has taken in order to secure the passage of the act regulating the practice of pharmacy in San Francisco; the minutes of the third annual meeting; the papers then read, although but two in number; and the increased number of names upon the roll of members of the Society, are so many indications of the energy and professional spirit displayed.

We are informed that, although the cod fisheries on the Pacific coast have been in successful operation for the past six or seven years, no single attempt of organized effort has been made towards developing the production of cod-liver oil.

Mr. Wenzell has succeeded in obtaining the alkaloids of ergot, discovered by him,* as a white flocculent precipitate from their alcoholic solution by means of anhydrous ether; the precipitate, however, is very deliquescent, and rapidly turns brown on exposure to air.

Mr. Calvert's paper is an able argument in favor of reducing the fluid extracts to one-half of their present pharmacopœia strength, a movement, however, for which we have no sympathy.

The pharmaceutical law appears to be a good one, based upon that proposed last winter for New York by the pharmacists of that city. It is certainly calculated, if properly enforced, to meet with the approbation of conscientious pharmacists and protect the interests of the public.

* See American Journal of Pharmacy, 1864, p. 193—202.

Geo. P Rowell & Co.'s American Newspaper Directory. Containing accurate lists of all the newspapers and periodicals published in the United States and Territories, and the Dominion of Canada and British Colonies of North America; together with a Description of the Towns and Cities in which they are published. New York: Geo. P. Rowell & Co., Publishers and Newspaper Advertising Agents. 1872. Large-8vo, 680 pages.

A handsomely gotten up and well-arranged volume, this directory will prove of particular value to all advertisers and others seeking information about the numerous periodicals published on this continent, the list of which appears to be pretty complete and reliable, although we miss a few, among them the "Chicago Pharmacist," and the "American Journal of Science and Arts," published at New Haven.

There are 6432 periodicals published in the United States, 87 in the Territories, 374 in the Dominion of Canada, and 29 in the other British North American Colonies. The largest number is published in New York (951), then follows Pennsylvania (614), Illinois (518), Ohio (439), Iowa (308), Missouri (300), Massachusetts (292), Indiana (290), Michigan (236), Wisconsin (208), &c.

The list of periodicals is arranged alphabetically, by states and towns, and gives, besides the names, the days of issue, general character, form, size, subscription price, date of establishment, editors and publishers' names, circulation, &c. This is followed by a list of towns and cities in which periodicals are published, giving the location, population, industry, &c., then by a list of periodicals inserting advertisements, publishing over 5000 copies; lists of papers devoted to religion, agriculture, medicine, education, amusement, secret societies, commerce and finance, insurance, real estate, science and mechanics, law, sporting, music, and woman's suffrage. The papers published wholly or in part in other than the English language conclude these lists, which occupy one-half of the volume, while the other half contains advertisements and the index in two parts.

Second Cincinnati Industrial Exposition, 1871. 8vo, pp. 285.

Cincinnati Industrial Exposition of Manufactures, Products and the Arts. Rules and Regulations and Premium List for the Third Exposition, 1872. Cincinnati: Robert Clarke & Co., Printers. 8vo, 56 pages.

The former of these handsome volumes, which contains the usual reports of articles entered for competition, on premiums awarded, &c., is embellished with a plan of the floor room of the last fair, a view of the building in which the exposition was held, a facsimile of the medals awarded, and a handsome steel engraving of the Davidson Fountain erected at Cincinnati last fall.

The contents of the other volume, to which plans of the space are added which will be available for the next exposition, is expressed in the title. With a commendable enterprise, the exhibiting space has been increased to seven acres, which has been divided into 16 grand departments, each of which is again subdivided.

The third exposition will be open from September 4th to October 5th. Any information desired in regard to it may be obtained on application to W. W. Taylor, Secretary of the Cincinnati Industrial Exposition.

EXCHANGES RECEIVED SINCE MAY.

American Chemist, April, May—American Journal of Science and Arts, May, June—American Journal of Insanity, April—American Practitioner, May, June—Atlanta Medical and Surgical Journal, ix, 1, 2—Archiv d. Pharmacie, March—Boston Journal of Chemistry, March to June—Boston Medical and Surgical Journal, No. 17—24—Buffalo Medical and Surgical Journal, April, May—Chemical News, N. 647–653—Chemist and Druggist, N .4,5—Chemisches Central Blatt, N. 11–18—Chicago Medical Examiner, 9, 10, 11—Chicago Medical Journal, 4, 5. 6—Chicago Medical Investigator, 5, 6—Cincinnati Lancet and Observer, 5. 6—Dental Times, April—Druggists' Circular, 5, 6—Detroit Review of Medicine and Pharmacy, 5, 6—Good Health, June, July,—Eclectic Medical Journal, Cinci., 5, 6—Journal de Pharmacie d'Anvers, 1872, 1–5—Journal of Applied Chemistry, 5, 6—Journal of Franklin Institute, 5, 6, 7,—Journal of Materia Medica, 5—Journal of the Gynæcological Society, 4, 5, 6—Journal de Pharmacie et de Chimie, 4, 5, 6—Kansas City Medical Journal, 3—The Lens, 2—Leavenworth Medical Herald and Journal of Pharmacy, May—Medical Press and Circular, Dublin, 1730–1738—Medical and Surgical Reporter, 17 to 24—Medical News and Library, 5, 6—Nashville Journal of Medicine and Surgery, 4, 5, 6—Neues Jahrbuch f. Pharm., 3, 4—New York Medical Journal, 5. 6—Northwestern Medical and Surgical Journal, 10, 11—Pacific Medical and Surgical Journal, May, June—Pharmacist, May—Pharm. Centralhalle, 15–22—Pharmaceutical Journal and Transactions, 97–103—Philadelphia Medical Times, 38 to 42—Répertoire de Pharmacie, April, May—Revista farmaceutica, Buenos Ayres, ix, 10–12—Richmond and Louisville Medical Journal, 5, 6—St. Louis Medical and Surgical Journal, 5, 6—Scientific American, 19–26—Virginia Clinical Record, June—Zeitschr. f. Chemie, 18–21—Zeitschr. d. Allgem. Oesterr. Apotheker-Vereins, 8–13.

VOL. XLIV.] [NO. VI

AMERICAN
JOURNAL OF PHARMACY

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] . AUGUST, 1872. [VOL. II, NO. VI

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patrônage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

TERMS OF ADVERTISING.

	One Year.	Six Months	Three Months.	One Ins'rt'n.		One Year.	Six Months.	Three Months.	One Ins'rt'n
One page,	$90 00	$50 00	$30 00	$15 00	Quarter page,	$30 00	$20 00	$15 00	$7 00
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Small notices of four lines—half a column—per line, 25 cents. Special rates ...

WANTED.

The Committee offer the publication price in money for the 4th number of the 1st volume, published January, 1830; for the complete 2d volume, commencing April, 1830; for the complete 3d volume (1831); for the complete 5th volume (1833); and for the complete 7th volume, commencing April, 1835. They will also be glad to receive and pay for the January and July numbers of 1857; for the March number, 1856; for the 37th volume (1865); and for the January numbers for 1866, 1867 and 1869, and the July and September number, 1870.

Address H. H. WOLLE, 145 N. Tenth Street.

NOTICE BY THE PUBLISHING COMMITTEE.

The American Journal of Pharmacy has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a General Index is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

William Procter, Jr., Alfred B. Taylor,
Prof. John M. Maisch, Thomas S. Wiegand,
Charles Bullock, *Committee.*

AGENTS FOR THE AMERICAN JOURNAL OF PHARMACY.

Henry Haviland, 23 John Street, New York.
Samuel M. Colcord, Druggist, 39 Tremont Street, Boston.
J. B. Baxley, Howard Street, Baltimore.
Albert E. Ebert, cor. of Twelfth and State Streets, Chicago.
Wm. T. Wenzell, cor. Market and Stockton Streets, San Francisco, Cal.
Alfred F. Rankin, 45 Sixth Street, Pittsburg, Pa.
William H. Crawford, 731 Washington Avenue, St. Louis, Mo.

☞ Foreign Exchanges sent to Mr. C. J. Skeet, Bookseller, 10 King William St., Charing Cross, London, W. C., directed "for the American Journal of Pharmacy. care of John Pennington & Son, Philadelphia U. S.," will reach us.

THE

AMERICAN JOURNAL OF PHARMACY.

AUGUST, 1872.

ON MONOBROMATED CAMPHOR.

By John M. Maisch.

Monobromated camphor was discovered by Th. Swarts in 1861,* who obtained it by heating Laurent's bibromide of camphor ($C_{20}H_{16}O_2Br_2$), in a sealed tube, to 100° C. After several hours, the color of bromine disappears, hydrobromic acid is formed, and a brownish oil, which gradually becomes crystalline, and contains the new compound. If bromine and camphor, in the proper proportions, are heated, in a sealed tube, for three hours, in the water-bath, the same compounds are formed. The crystalline mass is washed with water, recrystallized from alcohol after treatment with animal charcoal, washed with an alcoholic solution of potassa, to free it from hydrobromic acid, then with much water, and finally recrystallized from a mixture of alcohol and ether.

After the publication of Professor Deneffe's account† of the medicinal properties of this compound, I attempted to prepare it, at the request of Professor Wm. A. Hammond, of New York, and followed at first the above process, not being aware at the time of the subsequent researches of W. H. Perkin, to which I shall presently refer.

Laurent prepared bibromide of camphor by dissolving camphor in cold bromine, and freeing the crystals, which form after some time, by rapid expression between bibulous paper. Gerhard states that these crystals decompose on the application of heat into bromine and

* L'Institut, 1862–63. Kopp & Will's Jahresbericht, 1862, 462.

† Amer. Journal of Pharmacy, 1872, 84.

camphor, which, however, has been refuted by Perkin. I can confirm this observation of the latter, and have also satisfied myself that Laurent's statement, that camphor crystallizes unaltered from its warm solution in bromine, is incorrect, as the copious evolution of hydrobromic acid already proves.

Monobromated camphor is formed according to the following equation: $C_{20}H_{16}O_2+2Br=C_{20}H_{15}BrO_2+HBr$. If prepared in a closed tube, it is evident that at all stages of the process the pressure must be very considerable, at first in consequence of the volatile nature of both camphor and bromine, and subsequently on account of the presence of the gaseous hydrobromic acid. When operating on a small scale, with suitable precautions, there was little difficulty in obtaining the compound. But when using several ounces of bromine at once, the tubes were usually shattered, and it became evident that this process could not be used with advantage on a large scale. The observation that on slightly heating the mixed camphor and bromine, the heat increases after the withdrawal of the fire, and the vessel contains considerable quantities of hydrobromic acid, suggested the idea that the camphor might be bromated without using closed tubes, simply by digesting the bibromide at an elevated temperature, or by allowing bromine to act upon camphor at a higher temperature, with the precaution to return into the retort any bromine and bromide of camphor which might be volatilized, while the disengaged hydrobromic acid might be absorbed by a solution of an alkali.

The neck of the retort was raised and connected with a reversed Liebig's condenser, which being found unnecessary, was afterwards substituted by a glass tube. If the reaction was not allowed to become too violent in the beginning, no bromine volatilized, but a yellowish-brown substance condensed in the neck, flowing back into the retort, like oil; gradually this became lighter in color, and golden-yellow needles were observed in the upper part and neck of the retort after cooling. Whether these needles are a bromide of camphor or a hydrobromate of monobromated camphor, has not been determined.

The heat was raised after the first reaction was over to a temperature varying in the different experiments between 100° and 132° C. (212 and 270° F.) The higher temperatures were found better adapted for rapidly generating the monobromated camphor; but in all cases a considerable quantity of an oily compound was found in the mother liquor from which the monobromated camphor had crys-

tallized. This oil contained more or less of the latter compound in solution, which was obtained by reducing it to a low temperature. The mother liquors containing the oil, in consequence of the frequent application of heat, turned black and left after the evaporation of the menstruum a black oil, which in the course of several weeks became granular; the oil still present in the magma could not be removed by different solvents which would also dissolve the crystallized granules. On being expressed between bibulous paper a grey solid mass was left behind, which was permanent in a temperature of 32° C. (90° F.), but became soft and oily when exposed to the direct heat of the sun, which was above 38° C. (100° F.) This compound is not monobromated camphor; its composition has not yet been investigated.

Attempts to separate the whole of the monobromated camphor from this oily substance by sublimation were not successful; the whole mass, after a slight white sublimate had been obtained, near 132° C. (270° F.), turned black, and after cooling sometimes did not separate any crystals, but remained liquid and oily, while at other times dark blackish-grey crystals were obtained.

It was noticed that the mother liquors of the first crystallizations of monobromated camphor contained considerable hydrobromic acid, which also adhered to the crystals. The endeavor to remove it by washing with hot water was not entirely successful, and necessitated the drying of the solid portion previous to recrystallization from alcoholic solvents. To avoid these difficulties the removal of the acid by means of a weak alkali (carbonate of lime) suggested itself, and, instead of alcohol, petroleum benzine was experimented with as a suitable menstruum for recrystallization.

The first crystallizations, whether obtained from alcohol or from petroleum benzine, contained notable quantities of the oily matter mentioned above, in consequence of which bromine was liberated on exposure to the light. The greatest portion of this oil could be removed by pressure between bibulous paper, and the remainder by subsequent recrystallization; but the loss of monobromated camphor was considerable, owing to its being partly absorbed by the paper with the oil, and to remain to some extent in the mother liquor with that portion of the oil not absorbed by the paper. Gasoline or petroleum naphtha was found to be a good solvent for this oil, and to dissolve at the same time much less of the monobromated camphor than alcohol, ether or petroleum benzine. Accordingly, when the

crystals as first formed have been drained in a funnel, they may be obtained nearly pure simply by washing them with gasoline, and require then one crystallization from alcohol or petroleum benzine, to be entirely pure and unaltered in the light. The monobromated camphor dissolved by the gasoline, may be recovered by evaporating most of the solvent spontaneously, washing the crystals with a little gasoline and recrystallizing. The remaining mother liquors, if not used as solvents in subsequent operations, may be worked up with the oil left by the first crystallization.

While experimenting with bromide of camphor, W. H. Perkin,* in 1865, obtained monobromated camphor by treating the oily matter obtained from the action of bromine and camphor with hot solution of potassa, and subsequently heating the product in a retort, collecting that portion of the distillate separately, which comes over above 364° C. (508° F.)

Th. Swarts,† however, prefers the process suggested by him to that of Perkin, regarding the former as more satisfactory; he also states that when moist monobromated camphor is distilled, or it is left in contact with hot water, bromine and hydrobromic acid are evolved, and camphor free from bromine is separated. The regeneration of camphor under these circumstances has never been observed by me; on the contrary, when the monobromated compound is boiled in a retort with water, a white crystalline sublimate resembling snow-flakes is slowly formed in the neck of the retort, and these crystals contain bromine, and have all the behavior of monobromated camphor.

Perkin observed that monobromated camphor, treated with alcoholic ammonia in a sealed tube, at 180° C. (356° F.), undergoes a slight decomposition, with the formation of an organic base and of ammonium-bromide. Fearing that the prolonged action of hot potassa solution upon the oil which already contains monobromated camphor might induce its decomposition, and my time not permitting to investigate it, I had resort to carbonate of lime (white marble), which, as previously observed, was found to answer the purpose well, as far as the removal of hydrobromic acid was concerned. On heating the remaining oily matter gradually, it was found to turn black when nearing 150° C. (300° F.), the color became darker as the tem-

* Journal of the Chemical Society, new series, iii, 92; Annalen d. Chem. u. Pharm. Suppl. iv, 124, and Will's Jahresbericht, 1865, 570.

† L'Institut, 1866, 287. Will's Jahresbericht, 1866, 622.

perature rose, and a little oil distilled over, which solidified after a while and turned red from the liberation of some bromine. Meanwhile the flake-like sublimate in the neck of the retort increased considerably, and the hot liquid boiled actively between 260 and 261° C. (500 and 502° F.), disengaging considerable quantities of hydrobromic acid, and separating also so much charcoal that the retort cracked. 8 ounces of bromine had been used in this experiment, the black residue of which, when dissolved in alcohol and filtered, yielded white crystals, requiring to be recrystallized once, while the mother liquor had a strong acid reaction, due to free hydrobromic acid.

Although this experiment was not very favorable for Perkin's process, in its application to the preparation of this compound on a large scale, it suggested a method of utilizing the oily residue which had accumulated from the mother liquors of the first crystallization of monobromated camphor prepared at a lower temperature. The grey granular mass, left by expressing a portion of the solidified oil, as stated above, was slowly heated to 260° C. (500° F.), and after the disengagement of most of the hydrobromic acid, was dissolved in petroleum benzine, treated with marble and filtered, when monobromated camphor crystallized. The oily residue, containing some of the granular compound, was next treated in the same way, with a similar result. In both cases some of the oily mass was left in the mother liquor, which may undoubtedly be utilized in a subsequent operation.

To recapitulate the results of these experiments, before giving the process which in my experience is best adapted to obtain monobromated camphor on a more extensive scale for medicinal purposes, it may be stated that the process is divided into three distinct operations: 1, the combination of bromine with camphor (bibromide of camphor), which takes place at the ordinary or slightly elevated temperature, particularly in the presence of a trace of alcohol; 2, the formation of the substitution compound (monobromated camphor), which may be effected at a temperature of 100° C. (212° F.), or in a much shorter time at 132° C. (270° F.); and 3, the utilization of the oily residue, the greatest part of which is converted into the substitution compound at 260° C. (500° F.) The product of the second part is at once white, requiring, if decomposition has been avoided, no filtration, but simply recrystallization. The use of the cheap petroleum benzine and naphtha, in preference to alcohol and ether, will also commend itself for the sake of economy. The yield is probably

larger than by Perkin's process, and the entire absence of all danger by the bursting of apparatus recommends this method as more practical than that of Swarts. Although more time is required for finishing the process completely, the different reactions will not require much supervision, except the careful attention to the temperatures.

The combining weight of camphor $C_{20}H_{16}O_2$ is 152; that of 2 Br =160; equal weights of the two substances, therefore, give a slight excess of camphor. I have found it advisable to use about one-twelfth more of camphor, the excess of which remains in the mother liquor, and very likely serves to prevent the formation of bibromated camphor ($C_{20}H_{14}Br_2O_2$,) if the oily residue previous to its final treatment has liberated bromine on exposure to the light. A greater increase of camphor is unnecessary, since even in the proportion of two to one bromine, the formation of the oily compound and the liberation of bromine on subsequent exposure is not prevented, while the difficulty to obtain the substitution compound free from camphor is considerably increased.

In regard to the quantity that may be conveniently worked up at a time, the manipulation described below renders it possible to use 12 oz. of bromine in a retort of the capacity of a quart, in which even 14 oz. have been operated upon by me at once.

Regarding the necessary apparatus, I have found the following most serviceable, and well adapted for the purpose.

A quart retort is placed in such a position that, the neck being sufficiently raised, any liquid condensing therein may readily flow back into the retort. To the neck is joined a glass tube, eighteen inches to two feet in length, bent downwards at the farther end, and by means of India rubber and glass tubing connected with a bottle of about 8 oz. or more capacity; the glass tube is cut off immediately beneath the cork, while another glass tube, running nearly to the bottom of the bottle, is bent twice at right angles, and dips with the other end into an open bottle containing about 8 oz. of water and an alkali for the absorption of the hydrobromic acid. The intervenient bottle, which is empty, serves merely as a receptacle for the bromide solution, which is drawn over on the cooling of the contents of the retort, and pressed back again into the last bottle on the reapplication of heat; the liquid is thereby prevented from running into the retort, but the bottle may be replaced by a Welter's safety-tube inserted into the tubulure. Since, theoretically, one half of the bromine employed is

converted into hydrobromic acid, its saving is a matter of some importance; it may be collected in water, or combined with any salifiable base or its carbonate. I have found the employment of white marble very convenient; the resulting solution of bromide of calcium is nearly pure; traces of iron present are removed by hydrosulphate of ammonia, after which the solution will, on evaporation, yield the pure salt.

The retort is charged with 13 oz. of camphor broken into pieces of convenient size, with which the neck is completely filled, while the balance is given into the retort. For this quantity, 12 oz. of bromine are used, which is introduced in four or five portions in quantities ranging from 2 to 4 oz. at a time, the larger quantity being used in the beginning, the smaller afterwards. If a funnel tube is used for this purpose, and the last drops of the bromine are washed down with a small quantity of alcohol, (about ½ drachm,) the reaction usually commences in from 15 to 20 minutes, or it may be brought on by the careful application of heat, which should be at once withdrawn as soon as gas bubbles commence to rise in the retort; the reaction will then proceed without any further attention, the heat increases, some bromine and bromine compounds volatilize, the latter being mostly condensed in the upper part of the retort, while the former condenses in the neck, forming with the camphor an oily liquid which returns to the retort. The next addition of the bromine should not be made until the contents of the retort have cooled down almost or quite to the ordinary temperature; and this precaution should particularly be observed, if, perhaps in consequence of too violent reaction, all the camphor has run into the retort. The contents of the latter will usually solidify when cooling, after such a reaction; but sometimes they remain quite fluid, and congeal on the subsequent addition of the requisite bromine. If the bromine is added in too large quantities, the heat will become so high, and the reaction so violent, that a large quantity of bromine may distil over uncondensed; if added in fractions, with the precautions stated, the temperature rises generally to from 60 to 65° C., (140 to 150° F.,) with at first slow, but gradually brisk extrication of hydrobromic acid gas. It follows from the latter phenomenon, that the mass must contain some monobromated camphor, or perhaps combinations of it with hydrobromic acid and bromine.

Up to this stage the tubulure of the retort may be kept closed with

the glass stopper; now a thermometer is inserted, and the retort slowly heated; a rapid, but regular evolution of hydrobromic acid gas takes place as the temperature increases; the golden yellow needles, mostly condensed in the neck, fuse and run back, and when the temperature has gradually reached about 120° C., (248° F.,) the liquid boils somewhat and the evolution of gas slackens. From and above 90° C., (194° F.,) the deep red color of the liquid becomes much lighter, and if the heat is raised to about 132° C., (270° F.,) the color will not deepen. At a somewhat higher temperature, particularly when nearing 150° C., (302° F.,) the liquid soon becomes darker and finally black.

When the temperature has reached 132° C.—which should require not less than three hours—the fire is withdrawn and the retort allowed to cool to about 50 or 55° C., (120 to 130° F.); the contents are dissolved in 12 oz. of petroleum benzine, and the solution is poured into a beaker glass containing some warm water and pieces of marble to neutralize the free acid still present. While cooling, the benzine solution is occasionally stirred to disturb the crystallization. On the following morning, the liquid matter is poured off, the benzine mother-liquor separated from the aqueous solution of bromide of calcium, and the crystals drained upon a funnel, the neck of which is loosely stopped with some cotton. Petroleum naphtha or gasoline is poured upon them until they change but little in color when exposed to the direct sunlight. When dry the crystals will weigh about twelve ounces; for complete purification they require to be recrystallized from alcohol or petroleum benzine.

More crystals may be obtained by evaporating the benzine mother-liquor to one-half and washing them first with the naphtha solution and then with some fresh naphtha. The mother-liquor, not yielding sufficiently pure crystals, is evaporated, heated in a retort to 260° C., (500° F.,) when it boils again, evolving hydrobromic acid. When the evolution of the latter slackens, the black mass, after cooling sufficiently, is taken up with benzine, the solution treated, as before, with warm water and an alkali (marble) and set aside to crystallize; the black crystals are redissolved in alcohol or benzine, the solution filtered and crystallized. The crystals require to be washed with petroleum naphtha, and on recrystallization are obtained pure. The remaining mother-liquors which on concentration do not yield any crystals, are evaporated, and the oily matter reserved for a subsequent operation.

Monobromated camphor crystallizes from alcohol in thin white or colorless prisms or needles; from petroleum benzine, it may be obtained in long, flat prisms, which are perfectly transparent and hard, and assume the appearance of shining scales when crystallizing rapidly from a very concentrated solution. It is entirely insoluble in water, but readily and freely soluble in alcohol, ether, and in less than its own weight in hot petroleum benzine, from which solution the greater portion crystallizes on cooling. It is permanent in the air and is not affected by the direct sunlight. Boiled with water it evaporates very slowly, condensing in the neck of the retort in fine white interlaced needles. Its odor is somewhat camphoraceous, not very strong, but persistent, and reminding of Borneo camphor; the taste likewise reminds of camphor, and is terebinthinate and scarcely bitter. It fuses at about 67° C., (170° F.,) and boils with partial decomposition at 274° C., (525° F.) According to Swarts, it forms with hydrochloric and hydrobromic acids, oily compounds, crystallizing after having been warmed for some time, in soft scales. This is very probably the oil-like matter remaining in the first mother-liquor, and requiring for its decomposition a temperature of 260° C., (500° F.) But even then the decomposition is not complete, and Perkin found that the product obtained by his process at 274° C., required to be freed from oil by pressing between bibulous paper. Long continued application of heat, (260° C.,) and treatment with potassa may perhaps effect it. Its decomposition by the action of light and air may probably be expressed thus: $C_{20}H_{15}BrO_2$, $HBr = 2Br + C_{20}H_{16}O_2$.

When boiled with a solution of nitrate of silver in nitric acid, monobromated camphor is decomposed and bromide of silver precipitated. From this the amount of bromine was calculated, and the following results obtained.

THEORY.			FOUND. I.	FOUND. II.	FOUND. III.
20 C	120	51.95	—	—	—
15 H	15	6.49	—	—	—
Br	80	34.68	34.59	34.57	34.64
2 O	16	6.93	—	—	—
	231	100.00			

No. I was monobromated camphor crystalized from petroleum ben-

zine; II, crystallized from alcohol, and, III, obtained by heating the oily compound of the first mother-liquor to 260° C. and crystallizing from petroleum benzine.

NOTES ON PEPSIN, BISMUTH, AND ELIXIR OF PEPSIN AND BISMUTH.

By E. Scheffer.

Several facts which I published in my essay (*Am. Jour. Phar., Feb.*, 1872), impressed on me the impossibility of a preparation such as elixir pepsin, bismuth, (and strychnine.) I do not want to speak again about the presence of alcohol in a solution containing pepsin, as I have repeatedly given the results of my experiments, which prove beyond doubt that pepsin and alcohol, particularly when the latter amounts to a certain percentage, are incompatible.

The main objection I intended to bring against such an elixir, prepared with ammonio-citrate of bismuth in a neutral or alkaline solution, is the neutral or slightly alkaline state. My experiments prove clearly that pepsin, in neutral solution, does not keep, and that in alkaline solution it loses its digestive properties. In how minute quantities the presence of an alkali destroys the digestive properties of pepsin, will be shown by the following experiments, quite recently made.

Having once taken, instead of distilled water, of our well water—which contains carbonate of lime and magnesia—to swell the pepsin, before the acid was added, I was astonished to find that the pepsin did not act on albumen. This caused me to repeat the experiment simultaneously with others for control.

A. Pepsin swelled in distilled water; the acid (6 drops of muriatic acid to the fluid ounce) added afterwards.

B. Pepsin swelled in well-water, and 6 drops of acid added to 1 oz. after 2 hours.

C. Pepsin swelled in distilled water, which was before shaken with carbonate of magnesia, for two days, and then filtered; 6 drops of acid added after two hours.

D. Pepsin dissolved in acidulated well water.

Of these four experiments each contained the same amount of acid, the same amount of pepsin, and to each vial the same amount of coagulated albumen was given. After having been exposed to a temperature of 105° Fahr. for six hours, in A and D all the albumen

was dissolved, while in B and C the albumen did not appear to have been acted upon.

Therefore, in C, the small quantity of magnesia which the distilled water had dissolved, and with which quantity the pepsin had been in contact before the acid was added, was sufficient to modify the pepsin and destroy its digestive action on fresh coagulated albumen. In B, the carbonates of the well water had caused the same result. In D, the carbonates were destroyed by the addition of acid before the pepsin was added, and therefore the albumen was easily dissolved. Such proofs, I think, must necessarily convince the most skeptic.

The physician might wish for a combination of pepsin and bismuth in the liquid state, but another question is, can such a combination be made, or can it exist? Those that manufactured the elixir of pepsin and bismuth (and strychnine), were satisfied to know that they used pepsin in its preparation, but whether it was in it or in an active form, never troubled them, as they never tested for it. They could conscientiously put their label on the bottle, and maintain that they used pepsin in its preparation. The physician prescribed it in good faith, because he had confidence in the firm who made it, and in the name by which the preparation was designated.

Having tested several elixirs of pepsin and bismuth that I could get hold of, I found that even after the addition of hydrochloric acid not the least quantity of albumen was dissolved.

Thinking that an acidulated bismuth solution might, in combination with pepsin, prove more efficacious containing the pepsin in its active form, my first aim was to find a bismuth salt for that purpose.

Crystallized ternitrate of bismuth dissolves in glycerin, which solution can be diluted with a considerable quantity of water before the subnitrate is precipitated. This salt I dropped from the list, as the solution is too acid and tastes too styptic.

Freshly precipitated subnitrate of bismuth, prepared with 1 part of crystallized ternitrate with 40 parts of water was put on a filter, and when entirely drained added to glycerin, in which it dissolves, forming a clear solution, but on the addition of water the clear solution becomes milky after some time.

I now tried the action of acids on ammonio-citrate of bismuth. For that purpose I made two solutions of ammonio-citrate of bismuth of the same strength, with the difference that the one solution was made with water alone, and the other with a mixture of glycerin and

water. To these solutions were now added different acids, and the following results obtained: Mineral acids gave in both solutions immediately a precipitate. By the addition of organic acids, such as acetic, lactic and citric, both solutions kept clear, but after a lapse of several hours the pure water solutions became milky, and by longer standing deposited a white precipitate, while in the solutions containing glycerin, an opalescence did not show itself before 24 hours.

Judging that a small quantity of organic acid, sufficient to dissolve the pepsin, would not give even an opalescence in a solution of ammonio-citrate of bismuth containing glycerin, I thought that a glycerole could be made containing pepsin as well as bismuth, etc.; but by mixing the pepsin solution with the solution of the bismuth salt, the pepsin was precipitated in the same characteristic form as it is precipitated from its solutions by chloride of sodium.

Having at first intended to make the glycerole contain in the pint 128 grains ammonio-citrate of bismuth, 256 grains of saccharated pepsin (respectively 1 and 2 grains to the fluid-drachm), 1 fluid-drachm of lactic acid, 8 fluid-ounces glycerin, and 8 ounces of water, I thought that by making it only half as strong in bismuth and pepsin it might answer, but the pepsin was in this instance also precipitated. The ingredients were put together in four different ways, but in all with the same result.

This negative result proves clearly that the pepsin is precipitated from its solution by the bismuth salt, and as I have proven in my essay (Feb., 1872), that a watery solution of pepsin is precipitated by chloride of sodium in the same way as an acidulated one, we must infer that the bismuth salt acts the same, and that therefore the elixir of pepsin and bismuth, as it was made, *cannot contain any pepsin.*

Abstracting, therefore, from the alcohol, and not speaking of the neutral or alkaline solution, the elixir of pepsin and bismuth is an incongruity, and when patients have derived any benefit from it, it was from the bismuth it contains and the stimulating effect of the spirits, but surely not from the pepsin, *as it does not contain any pepsin.*

Louisville, Ky., July 1st, 1872.

GLYCEROLE OF ASSAFŒTIDA.

By Alonzo Robbins.

℞.	Assafœtida, ...	℥ij.
	Glycerin, q. s., ft., ...	f. ℥viii.

Select the best assafœtida and cut it quite fine; put it into an

eight-ounce bottle, and add five fluid-ounces of glycerin; cork well and suspend in a can of water, which place on the stove where the heat will be very moderate; leave it remain so a day or two, shaking the bottle frequently; then strain through a coarse cloth, and return the residue to the bottle with three fluid-ounces of glycerin; let stand as before, and then strain into that first obtained, and make up to 8 fluid-ounces by adding glycerin.

One fluid-drachm of this added to seven drachms of water will make milk of assafœtida containing the proper quantity of the drug.

The formula, as given above, I have made use of a number of times during the last ten years, and have found it to furnish at all times a good article of milk of assafœtida. I have also used glycerin with gum ammoniac, and while the solution was not as perfect as that of assafœtida, I have found, upon examination, that the amount of ammoniac taken up is about the same as when the mistura ammoniaci is made by the officinal formula. With myrrh I did not succeed well, but still obtained a passable preparation which I have no doubt could be, by continued experiment, much improved.

ON SOME CONSTITUENTS OF THE RHIZOME OF SANGUINARIA CANADENSIS.

By Ernest Peirpoint.

From an Inaugural Essay.

The author reviews the various chemical examinations by Dana, Schiel, Riegel, Wayne, Gibb and Newbold, and then relates his observations.

In preparing sanguinarina, the powdered root was digested in water strongly acidulated with muriatic acid, the liquid expressed, filtered and precipitated with aqua ammoniæ in excess. The precipitate, which was of a brownish-purple color, was collected on a filter. The paper on which the precipitate was deposited was torn into small pieces, and digested with alcohol till it would take up no more of the substance. The object of digesting with alcohol instead of at once treating with ether, is to save ether, which is absorbed by the paper and magma. The alcoholic solution was then evaporated to dryness, and a small quantity of ammonia was added (to neutralize any acid absorbed from fumes), which changed it from a deep blood-red to a light fawn color. This residue was then repeatedly shaken with ether, till a small portion of the solvent evaporated on platinum foil left no residue, and

was not reddened by dilute sulphuric acid. During the agitation of the residue with ether, there was noticed a marked fluorescence, similar to that of acid solutions of quinia, which was also observed in alcoholic solutions, but not to the same degree as in the former. Having never read of this, I thought it worthy of mention. The ethereal solutions were then mixed, and precipitated with a mixture of sulphuric acid and ether. The precipitate was dissolved in hot alcohol, and left to evaporate spontaneously.

The clear filtrate obtained after precipitating the sanguinarina by ammonia was acidulated and tested for an alkaloid by iodohydrargyrate of potassium, which caused a light brown precipitate. This was collected on a filter and washed well with water. The filter was then torn up as before, and digested in a concentrated solution of carbonate of soda for 24 hours, and finally evaporated to dryness. The residue was treated with alcohol (sp. gr. ·835) till it would take up no more. The alcoholic solution was then evaporated to dryness.

Supposing that the alkaloid, which had caused the precipitate with the iodohydrargyrate, might be a small quantity of sanguinarina dissolved by the excess of ammonia employed, some of the acidulated watery infusion was precipitated by ammonia, leaving it in excess. The liquid was allowed to stand for a day in the test tube, and then filtered. A small portion evaporated on platinum foil left a slight residue, but was not reddened by dilute sulphuric acid. When the dilute acid was added in excess to the liquid in the test tube, it gave no red color, as would result with a solution of sanguinarina. After evaporating the alcoholic solution the residue was placed in a flask, and agitated with ether to remove any sanguinarina that might be present. When the ethereal liquid was evaporated on platinum foil, it left no residue.

The mass which was not taken up by ether was shaken with very dilute sulphuric acid, and treated with animal charcoal. On evaporation, fine needle-shaped crystals formed, and when a small crystal was exposed to heat on a platinum foil, it swelled up, blackened and burned, leaving only a slight residue; this, when boiled with water and filtered, gave a white precipitate with oxalate of ammonia and chloride of barium, indicating a little sulphate of lime, probably derived from the animal charcoal.

The mass of crystals thus obtained were exhausted with alcohol and the alcoholic solution evaporated, when the same needle-shaped

crystals were obtained. They were clear, almost transparent, and had an acrid and slightly pungent taste. When exposed to heat they swelled up, blackened, and were entirely volatilized.

From the small quantity obtained I was unable to present a specimen or to make any further experiments, but hope to do so at some future time.

To obtain puccin, the clear ethereal solution left on precipitating the sulphate of sanguinarina was set aside; on standing, a deposit took place on the sides of the bottle, consisting of sulphate of sanguinarina, known by its red color.

The clear ethereal liquid was then poured into a retort, carefully separating the free acid at the bottom of the bottle. It was then slowly distilled till nearly dry, leaving a slight residue of a brownish-red color and having the odor of sulphate of sanguinarina.

It was not rendered turbid by the addition of a larger quantity of ether.

The retort was then rinsed out with ether and the whole evaporated to dryness, when it was obtained in the state of a reddish-brown mass, having taste, smell and all the external characteristics of sulphate of sanguinarina, which might have been re-dissolved in the excess of ether employed for its precipitation.

Equal bulks of sulphate of sanguinarina and this residue were taken and separately treated with equal quantities of ether; the residue was dissolved, while the sulphate of sanguinarina was not.

The residue had an acid reaction to test paper; it was then dissolved in alcohol and left to evaporate spontaneously.

For want of time I did not make any further experiments with sanguinarina and puccina, which appear to be not identical, as has been asserted by some.

Sanguinarinic acid was prepared from the filtrate after precipitating by iodohydrargyrate of potassium. The precipitate obtained with solution of acetate of lead was washed with water to remove excess of lead; the moist magma was suspended in water, and sulphuretted hydrogen was passed through it till the black sulphide of lead was no longer produced. The clear filtrate, free from lead, was evaporated till it formed into a crystalline mass of a deep red color. The crystals were insoluble in alcohol, and their taste was sour and acrid.*

* Newbold's sanguinarinic acid is soluble in alcohol, and has little taste. (See Amer. Journal of Pharmacy, 1866, 497.)—Ed.

The residue left after exhausting the precipitate by ammonia with ether, was treated with dilute sulphuric acid and purified by animal charcoal. The filtrate, on evaporation, yielded crystals containing sulphate of lime, which were exhausted with alcohol. This solution produced crystals of the same appearance as obtained in the precipitate by the iodohydrargyrate, and the two are probably identical. Their nature has not been ascertained, except that they are the salt of an alkaloid.*

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Generation of Hydrocyanic Acid from Nitro-Compounds.—Wöhler observed in 1828, that picric acid, on being treated with baryta water, yields hydrocyanic acid. Julius Post and H. Hübner observed that nitro- and dinitrobenzol yield the same acid when treated with caustic alkalies, the former with fusing potassa, the latter with boiling dilute solutions of potassa. The authors intend to investigate other nitro- and amido-compounds.—*Ber. d. d. Cem. Geo. zu Berlin*, 1872, *N.* 9.

Estimation of Uric Acid.—H. Schwanert has found that uric acid whether precipitated by muriatic acid from its soda solution, from the urine of healthy or of leucæmic persons, remains partly in solution, so that for every 100 c.c. of liquid 0·0048 gram. must be added to the weight of the precipitate, corroborating the researches of Zabelin.† The proposed method of Solkowski,‡ to precipitate first with muriatic acid, and after supersaturation with ammonia, by nitrate of silver, decomposing by sulphuretted hydrogen, and precipitating by muriatic acid, may sometimes occasion a loss of uric acid.—*Ibid.*, No. 7.

Estimation of the Commercial Value of Carbolic Acid.—To ascertain the amount of pure carbolic acid, Schædler converts it into sulpho-carbolic acid, operating as follows: 2 or 3 grammes of the acid are heated in the waterbath to expel alcohol, if present; an equal quantity of sulphuric acid is added, and the mixture digested between 50 and 60° C., (122 and 140° F.,) afterwards diluted and saturated

* This alkaloid, if not identical with, seems at least to bear some resemblance to, chelidonina, which has an acrid taste, dissolves in alcohol and in ether on prolonged boiling, and yields salts having a bitter taste.—Ed. Am. Jour. Pharm.

† Annalen d. Chem. u. Pharm. Suppl. ii, 313.

‡ Virchow's Archiv. lii, 60.

with carbonate of baryta or litharge; the filtrate is precipitated by dilute sulphuric acid, the precipitate washed, dried and heated, and its weight calculated into that of pure carbolic acid.—*Pharmac. Centr. Halle*, 1872, *N.* 25.

Dry Narcotic Extracts; Correction.—The temperature given in Stromeyer's paper on this subject (see page 300 of July number) should be 50° C., and not 80°, as published.—*Archiv. d. Pharm.* 1872, *April*, 41.

To prevent Gum Solutions from Moulding, A. Hirschberg adds a few drops of sulphuric acid, and decants from the subsided sulphate of lime. After keeping for 18 months, it had neither moulded nor lost its adhesive properties.*—*Ibid. p.* 44.

The preservation of Milk by Boracic Acid has been experimented with by A. Hirschberg, who observed that two pounds recently drawn milk, in which 1 drachm of boracic acid has been dissolved, will show a very faint acid reaction, (temp. 10° R.=55° F.,) after 96 hours, but even after 120 hours, merely a thin film of cream had separated.—*Ibid.* 45, 46.

The Sugars in the Rhizome of Couch grass, Triticum repens, Lin., have been examined by Prof. H. Ludwig and H. Mueller, who found, 1, a sugar (fruit sugar) turning polarized light strongly to the left; 2, a sugar rotating to the right, (not cane sugar;) 3, a peculiar left rotating gum, copulated in a peculiar manner with nitrogenated compounds, and yielding, by splitting, left-rotatory sugar; 4, sweet compounds intermediate between this gum and fruit sugar, and copulated with nitrogenated compounds.—*Ibid. May*, 132–147.

To render Cloth and other Fabrics Moth and Water-Proof, a solution of acetate of alumina is prepared by mixing solutions of equal weights of alum and sugar of lead. The clear liquid is diluted with water and mixed with solution of isinglass. In this mixture the articles are left for about 12 hours, until they are thoroughly saturated, when they are dried and pressed, or otherwise finished.—*Chem. Centralblatt*, 1872, *No.* 22, *from Färber Ztg.*, *No.* 8.

Cement for Chemical Apparatus.—Otto Facilides mixes syrupy solutions in benzine, prepared with the aid of heat, of shellac and

* For years past, we have used alum for this purpose, with the same good effect.—*Editor Amer. Jour. Pharmacy.*

caoutchouc. If applied with a brush to the corks used for the apparatus for preparing chlorine, the joints are perfect.—*Archiv d. Pharm., May,* 151.

New Reagent for Blood.—H. Struve found that the coloring matter of blood is best precipitated in the following manner: To the liquid containing blood, a little ammonia or caustic potassa is added, then a solution of tannin, and finally acetic acid, until the reaction is distinctly acid. The dark-colored precipitate, tannate of hæmatin, subsides rapidly, is easily collected, washed and dried, and yields, when treated with sal ammoniac and glacial acetic acid, the well-known hæmin crystals.

20 c. c. of urine containing 0·023 per ct. blood yielded an abundant precipitate, sufficient for many experiments for hæmin.—*Zeitschr. f. Anal. Chem.*, 1872, 29.

A source of Error in the Estimation of Sugar with Fehling's Solution has been pointed out by Dr. L. Brunner, who found that some kinds of filtering paper are very appreciably dissolved by alkaline solutions of copper; he, therefore, recommends to ascertain this behaviour of the copper solution for each lot of filtering paper, or to convert the cuprous oxide obtained in the process into cupric oxide.—*Ibid.* 32.

Examination of Indigo.—It is uncertain whether the presence of the other constituents of indigo besides the blue coloring matter, does not render the estimation of the latter by the oxidation process incorrect, or at least uncertain. J. Loewenthal believes that more reliable results are obtained from estimating the ashes, which sometimes amount to 29 per ct., while an excellent indigo yielded only 4·5 per ct. —*Ibid.* 45.

Modification of Pettenkofer's Test for Biliary Acids.—Strassburg* adds to the urine to be tested a little cane sugar, then moistens a piece of filtering paper with the liquid, and, after drying, places a drop of concentrated sulphuric acid upon the impregnated paper, which after ½ minute shows the violet coloration beautifully, particularly in transmitted light. Normal urine does not produce this coloration, which appears if only 0·00003 biliary acids are present.—*Ibid.*, 97.

* Archiv d. Physiol. iv, 461.

Arbor vitæ in Small-pox.—The leaves of *Thuja orientalis* and *occidentalis* are employed in Belgium against small-pox. A tincture is prepared by macerating, for ten days, one part of the fresh leaves with 10 parts of 90 per cent. alcohol; it is given in water in doses of 10 drops.—*Journ. de Pharm. et de Chim.*, 1872, *May*, 382.

Ointment against Itching in Small-pox.—Dr. Gueneau de Mussy uses, when the itching is intolerable, a cerate composed of simple cerate 30·0, bromide of potassium 3·0, and camphor 0·3 grm. After the pustules have been followed by ulceration of the skin, the following application to the little ulcers is employed by the same physician: simple cerate 30·0, tannin 2·0, oxide of zinc 2·0, calomel 0·25, extract of opium 0·1 grm. During the intervals of the applications, it is useful to wash the sick parts with water to which a little tincture of benzoin has been added.—*Ibid.*, *June*, 436.

Camphor in Erysipelas.—Dr. Delpech recommends an ethereal solution of camphor, composed of equal weights of both, a few drops of which are from time to time put upon the erysipelatous surface; in most cases a rapid cure follows.—*Ibid.*

Disinfection of Sponges.—Leriche impregnates them witha solution of 4 parts permanganate of potassa in 100 p. water; they are afterwards put into a solution of sulphurous acid (25 to 100 water), and finally washed with much water.

By this treatment sponges acquire their original condition, even their marine odor, although they may have been soaked in pus and infectious matter. In the course of time they bleach without altering their tissue, even if subjected for four months to this process of depuration.—*Rép. de Pharm.*, 1872, *May*, 418.

A New Organic Matter in Diabetic Urine has been discovered by Professor Campani. It is precipitated by basic acetate of lead, and reduces four times more of Fehling's solution than is reduced by glucose; but it is devoid of rotating power upon polarized light.

Although the precise origin and true nature of this new body is not known, this discovery throws a doubt upon the correctness of the assays by volumetry in some cases of glycosuria; it deprives, in particular, a case of polyuria of all value, in which small traces of sugar were found, upon which ground an analogy has been supposed to exist between this disease and diabetes; and it follows, finally, that diabe-

tes is not a simple glycosuria, but that its morbid process consists in an altogether special alteration of the functions of assimilation and nutrition.—*Journ. de Pharm. d'Anvers*, 1872, *May*, 204, from *Gaz. Méd. de Paris.*

A New Property of Collodion.—At a recent session of the Berlin Society of Natural Sciences some explanations were made concerning a discovery of Mr. Kleffel, which is likely to lead to some useful applications. Kleffel found that if a glass-plate is covered with collodion, and, after this has become solid, a printed paper is pressed upon it with the hand, an impression of the letters is left upon the collodion, remaining discernible after the complete drying of the latter. The impression is best seen in transparent or in reflected light, after breathing upon the plate, the letters being depressed and clear, while the other portions are opaque.—*Pharmac. Zeitung*, 1872, *No.* 50.

ON THE PREPARATION OF ATROPIA FROM BELLADONNA LEAVES.

By J. Lefort.

Dry and coarsely contused belladonna leaves are exhausted by boiling water containing 10 grm. tartaric acid for each kilogramme of the leaves; the decoction is strained and evaporated to a soft extract, which is treated with strong alcohol heated to 50° C. (122° F.), to dissolve the tartrate of atropia. By treating the extract three or four times, only about a litre of alcohol is required for about 200 grm. of extract, the approximate yield of 1 kilogramme of leaves. From the dark brown tincture the alcohol is distilled off, leaving about 50 grm. of extract of a thick syrupy consistence, which in a suitable flask is agitated with one or two portions of ether, to remove a little resin and chlorophyll. The extract is now treated with a fresh portion of ether and with a solution of 8 grm. of caustic potassa in half its weight of water; on agitation, a little ammonia is disengaged from an ammoniacal salt, normally contained in the leaves, and the liberated atropia dissolves in the ether, which is several times renewed to completely exhaust the alkaloid. The ether is now distilled off, leaving a transparent, yellowish-brown, semi-solid extract, which is dissolved in water acidulated with sulphuric acid. A little resin is separated by filtration, bicarbonate of soda is added until effervescence ceases, when, on agitating with ether, all the atropia will

be dissolved, and obtained in a crystallized condition on the spontaneous evaporation of the ether.

The preparation of atropia by this process is as easy and satisfactory as from the root, and has the advantage of saving labor in not requiring the leaves powdered. It is to be observed that the extract, previous to its treatment with ether, has the consistence of grape sugar syrup; if more diluted, a portion of the alkaloid will not be dissolved from the aqueous liquid, except by considerable portions of ether.

Other advantages are that the loss of alcohol is entirely, and that of ether almost totally, avoided, the loss of the latter liquid occurring in the requisite spontaneous evaporation of the alkaloid solution. The author also draws attention to the probability of obtaining, by the same process, the alkaloids from the leaves of hyoscyamus, stramonium and aconite.—*Journ. de Pharm, et de Chim.*, 1872, *June*, 417–422.

SULPH-HYDRATE OF CHLORAL.

By M. H. Byasson.*

If anhydrous chloral be submitted to a current of dry sulphuretted hydrogen, at ordinary temperature, the gas is absorbed; and if the current be sufficiently rapid, there is a sensible amount of heat produced. In a short time the liquid anhydrous chloral becomes nearly solid; and in order to complete the reaction it is necessary to raise the delivery tube so as to be level with the surface. At the end of about twenty-four hours the reaction is terminated. The substance formed is completely solid, white, but presenting on its surface some portions colored reddish-yellow. By purifying this substance, first by distillation, and afterwards by crystallization, from ether or absolute alcohol, pure sulph-hydrate of chloral is obtained, presenting the following characters: It is white, has a very disagreeable odor, and a peculiar taste, which recalls that of chloral hydrate. It crystallizes by slow evaporation of its solution in ether, anhydrous alcohol and chloroform, either in rhomboidal plates or in four-sided right prisms. It melts at about 77° C., and boils at 123° C., under a pressure of 0·7385. It evaporates similarly to camphor, and its vapors will darken moistened paper impregnated with a soluble salt of lead at a

* Comptes Rendus, vol. lxxiv, p. 1290.

great distance. It is soluble in all proportions in anhydrous alcohol, ether, and chloroform. In the presence of water it is slowly decomposed, with a deposit of sulphur, the formation of sulphuretted hydrogen, which is given off, hydrochloric acid and chloral hydrate, which are found in the water, and a small quantity of a liquid which is deposited and has the appearance of tetrachloride of carbon. It is certain that in the presence of water the reaction is very complex, because the sulphuretted hydrogen exercises its reducing action upon the compound $C_4HCl_3O_2$,* as is shown by the deposit of sulphur and the formation of hydrochloric acid and chloride of carbon.

Under the influence of the hydrated alkalies or solution of ammonia, the reaction in the cold is rapid; the liquid is colored yellowish-brown, and chloroform is deposited. The solution contains sulph-hydrate of sulphide of the alkaline metal and formiate, and chloride of the same base. This reaction, analogous to that presented by chloral hydrate, and in which the formation of the chloride is secondary, may be represented by the following equation:

$$C_4HCl_3O_2,2HS + 2\,(KO,HO = C_2HCl_3 +$$
$$C_2HKO_4 + KS,HS + 2HO.*$$

Submitted to the action of concentrated nitric acid, sulph-hydrate of chloral oxidizes rapidly, the disengagement of nitrous vapors is intense, and the reaction should be practiced upon small quantities at a time. Sulphuric acid is found in the liquid, and trichloracetic acid, the presence of which may be easily shown in the production of chloroform by the addition of potash, and which the author has isolated by distillation. This reaction may be expressed by the following equation:

$$C_4HCl_3O_2,2HS + 4(NO_5HO) =$$
$$C_4HCl_3O_4 + 2(SO_4H) + 3NO_2 + NO_4 + 4HO$$

Concentrated sulphuric acid has no marked action in the cold; with heat there is production of anhydrous chloral, disengagement of sulphuretted hydrogen and sulphurous acid, and deposit of sulphur.

By oxidizing this substance carefully with nitric acid, adding chlorate of potash at the end of the reaction, and then estimating the sulphuric acid produced as sulphate of baryta, it was found as the mean of three analyses that 0·50 grams gave 0·635 grams of sulphate of

* C=6; O=8; S=16.

baryta. This was thought sufficiently near to the calculated number, 0·642, to justify, when taken with the preceding reactions, the formula $C_4HCl_3O_2,2HS$. It will be seen that the formula of the sulph-hydrate is that of the hydrate, with the water replaced by sulphuretted hydrogen.

This compound being decomposed by water or alcohol containing water, its administration is difficult. Quantities varying from 0·20 gram to 0·60 gram, in solution in ether, were injected into guinea pigs. The effects noticed were a diminution of temperature of about one degree; muscular relaxation with peaceable slumber for about two hours; no notable diminution of sensibility, and a slight acceleration of the heart's action. After the slumber the animal returned rapidly to the normal state.—*Pharm. Journ., Lond., June* 29, 1872.

USE OF HYDRATE OF CHLORAL IN THE MANUFACTURE OF TRICHLORACETIC ACID.

Trichloracetic acid, $C_4Cl_3O_3HO$, was discovered, as all chemists know, by M. Dumas, who obtained it by exposing in the direct rays of the sun large flasks containing crystalline acetic acid and chlorine gas in the proportions of nine decigrammes of acid to each liter of chlorine. Afterward it was found that it could be made from chloral, by oxidizing it with a mixture of chlorate of potash and hydrochloric acid. It has recently been found that it is sufficient to expose in the direct sunlight for three or four days a mixture of equal weights of hydrate of chloral and fuming nitric acid, allowing the action to go on until the red fumes cease to be given off. The mixture is then distilled with a thermometer. When the temperature reaches 195° C. the heat is kept steady at this point. The liquid distilling at this point may be considered as pure trichloracetic acid. The formula for this reaction is as follows:

$$\underbrace{2NO_5}_{\text{Nitric acid}} + \underbrace{C_4Cl_3O_2H}_{\text{Chloral hydrate}} = \underbrace{2NO_4}_{\text{Red fumes}} + \underbrace{C_4Cl_3O_3HO.}_{\text{Trichloracetic acid}}$$

This trichloracetic acid solidifies at 44° C., and fuses at 32° C.; its specific gravity is 1·618; crystallizes in colorless rhombohedra, is deliquescent, has a feeble odor, and a sharp, acid taste. It whitens the tongue like oxygenated water; volatilizes at 200° C., vapor density 5·8. Instead of using sunlight, the chloral can be put in a retort with fuming nitric acid, and at first it gets warm and gives off

nitrous fumes; then the action slackens little by little, and finally it is necessary to apply heat. After the excess of acid is gotten rid of, the residue is taken up with water and concentrated or allowed to crystallize.

The liquid trichloracetic acid has a slight resemblance to acetic acid, and is used as a cautery in medicine for removing warts and other excrescences on the body.

An interesting reaction of this compound is the formation of chloroform and carbonate of ammonia when boiled with an excess of ammonia.—*Journal of Applied Chemistry, June,* 1872.

INFLUENCE OF CERTAIN SALTS, BOTH ORGANIC AND MINERAL, ON THE CRYSTALLIZATION OF SUGAR.

By M. Marschall.

The formation of treacle in saccharine juices has been ascribed to the presence of certain salts, but nothing precise has been known on the subject. The author has prepared solutions of the various salts which may occur in the juices of beet-root. A volume of 10 cubic centimetres of each solution, of a known strength, was heated with 35 grms. of sugar in sealed tubes in the water-bath. The sugar was then allowed 17 to 24 days' time to crystallize out, at a temperature of 16° to 17° Centigrade. The amount of sugar and of salt present in the mother liquor were first determined. As 10 cubic centimetres of water dissolve 20 grms. of sugar, there was sugar enough to saturate the solutions. If, when the experiment was finished, the mother liquor contained more sugar than the same volume of pure water could contain, it is a proof that the salt experimented upon had caused the formation of treacle. If, on the contrary, the mother liquor contains less sugar than a solution in pure water, it is a proof that the salt has favored the crystallization of sugar by diminishing its solubility. Results:

1. *Salts Favoring Crystallization.*—Sulphate and nitrate of soda; sulphate, nitrate, and hydrochlorate of magnesia; nitrate and hydrochlorate of lime; aspartate of potash; acetate, butyrate, valerate, and malate of soda.

2. *Indifferent Salts, without Influence.*—Sulphate, nitrate, and hydrochlorate of potash; carbonate of soda; caustic lime; valerate, malate, and oxalate of potash; oxalate, citrate, and aspartate of soda.

3. *Salts Promoting the Formation of Treacle.*—Carbonate, acetate, butyrate and citrate of potash.

The latter are all salts very difficult of crystallization. The carbonate is particularly active. This fact explains why the addition of sulphuric acid to the juice sometimes increases the yield of sugar, the pernicious carbonate being converted into the indifferent sulphate. Sulphate of magnesia promotes the crystallization of 10 times, and chloride of magnesium of 17 times its weight of sugar; chloride of calcium 7½ times.—*Amer. Chemist, May*, 1872, from *Mechanics' Magazine.*

PARAFFINE, ITS MANUFACTURE AND USES.

By Prof. Charles A. Joy.

In 1830, Baron von Reichenbach, who died in 1869, discovered a white, waxy substance in the products of the distillation of wood, to which, owing to its permanent character and chemically indifferent properties, he gave the name paraffine, from *parum affinis.* Since that time it has been observed that it is produced during the distillation of many organic substances, such as resins, bituminous coal, lignite, brown coal, peat, fats, wax, bituminous shales, bog head coal, and that it occurs ready formed in petroleum, in the mineral ozokerite, in bitumen and earth wax. From being an article of insignificant chemical importance, it has risen to the front rank of valuable technical products. I distinctly recollect seeing in a small case at the Paris Exhibition of 1855 a few candles and a white block resembling spermaceti, on which was inscribed the word "*paraffine.*" Not one in ten thousand of the passers-by had the remotest knowledge of what it was. In the Paris Exhibition of 1867 this article made its appearance everywhere, and I dare say there were tons of it in the building. The applications of paraffine are now so numerous and important that it is difficult to trace them through all of their ramifications, and I can only aspire to a very imperfect attempt in this direction. The best source for the literature on the subject is Wagner's Annual Reports on Technology, and of that I shall make free use.

The methods for the manufacture of paraffine are different, according to whether it is a direct or an incidental product. I shall mention some of the most important processes actually pursued in the arts. That paraffine was contained in petroleum was known as early

as 1820, and Buchner, who found it at that time in the Bavarian oil, is sometimes called its discoverer. The idea of employing petroleum as a source for paraffine was not fully cultivated until 1856, when the market became supplied with an oil unusually rich in this material. American petroleum contains very little, but the Indian, and especially Rangoon and Java oil, affords from 10 to 40 per cent. The crude petroleum is distilled until 25 per cent. has gone over; the remaining portion is subjected to a higher temperature, and toward the last the paraffine goes over, which is condensed by surrounding the tanks with ice or artificial mixtures for the production of cold.

Latterly the manufacture from ozokerite has been conducted on an immense scale. The introduction of this name into commerce affords a striking illustration of successful advertising. It is said that the originators of the word spent twenty thousand pounds sterling in posting it on to every available dead wall, conspicuous rock, high fence, and in advertising it in every language and every country, until the curiosity of the whole world was raised to a high pitch in anticipation of the coming wonder. After waiting a number of years, public curiosity was gratified by the appearance on the market of some remarkably fine candles, which, on inspection, proved to be the well-known paraffine. The capital invested in the new enterprise is very large, and the production of pure paraffine somewhat startling. Ozokerite, as it is found in Austria, Moldavia, the Caucasus, and near the Caspian Sea, is a vegetable wax of a yellowish color, fibrous structure and light specific gravity. In its natural state it will melt readily, but requires to be wrapped around a wick before it will burn. About 300 pounds of the crude material are subjected at a time to fractional distillation in an iron still, provided with coolers and condensers. The yield is 8 per cent. oil and 60 per cent. paraffine. The oil is reserved for illuminating purposes. A small portion of the light oil, which boils before 212° F., is subsequently used in refining the paraffine. The crude paraffine contains an oil which is removed under a hydraulic press, and distilled to save adhering paraffine, and for other purposes.

The press cakes are melted and treated with sulphuric acid. The acid is neutralized with lime, and the paraffine distilled off. The product is again pressed, melted with the light oil mentioned above, and once more pressed. The final result is a perfectly white, transparent, hard substance, quite pure and inodorous, having a metallic ring, and

fusing at 63° C. (113° F.) Its chief use is in the manufacture of candles. The bitumen from Trinidad, Cuba, California, Nicaragua, Peru and Canada is also proposed as a source for paraffine. That from Trinidad yields nearly two per cent. The manufacture of paraffine by the dry distillation of peat and bog head coal is divided into two operations. 1. The production of tar. 2. The working up of the tar for illuminating oil and paraffine. Before the discovery of petroleum, this industry was regarded as one of great importance, and it was anticipated that most of our burning oil would come from this source. The trade name of the oil was *kerosene*, a word which has since been applied to refined petroleum. After the introduction of petroleum, the bog head industry declined in the United States, but it is still important in Scotland, where great quantities of paraffine are yearly made, according to Mr. Young's patent. Mr. Young originally subjected the bog head coal to a downward distillation, but numerous modifications have been introduced according to the nature of the crude material. More attention has latterly been bestowed upon the coolers and condensers than formerly. The methods of compressed air, ether engines, and condensation of ammonia, have been applied to the cooling of paraffine on a large scale, and the yield has thus been appreciably increased.

It is in this method of artificial refrigeration that the chief progress has been latterly made. Paraffine, in its pure condition, is a white, waxy, inodorous, tasteless substance, harder than tallow, softer than wax, with a specific gravity of 0·877. Its melting point is variable, depending somewhat upon its origin. It ranges between 43° C. and 65° C. (109° F. and 151° F.) An ultimate analysis yields, on the average, carbon 85 per cent. and hydrogen 15 per cent. It is insoluble in water, and is indifferent to the most powerful acids, alkalies and chlorine, and can be distilled unchanged with strong oil of vitriol. Warm alcohol, ether, oil of turpentine, olive oil, benzole, chloroform and bisulphide of carbon dissolve it readily. It can be mixed in all proportions with wax, stearin, palmitine and resin. As stearin is less soluble in benzole than paraffine, Vogel proposes this reaction as a method for detecting the adulteration of paraffine with stearin. Further properties can be inferred from the uses to which it is applied. It burns with a wick, and gives much more light than stearin or wax, but as it melts at a low temperature, it cannot be advantageously employed alone. When required for candles, it is melted with stearin

wax and spermaceti, to render it less liable to bend over in warm weather, or to run. There are single establishments in Germany capable of turning out 250,000 candles daily, and in England even these figures are exceeded. As the melting point of paraffine is low, it is proposed to employ it for the preservation of meat. Meat several times immersed in a bath of melted paraffine will keep for a long time, and when wanted, it is only necessary to melt off the adhering wax-like coating to prepare it for cooking. For stoppers to acid bottles, to coat paper for photographic and other uses, as a lubricator, for candles, as burning oil, to coat pills, in the refinery of alcohol and spirits, paraffine now finds ready use. It has also been employed for the adulteration of chocolate and candies: for the preservation of railroad timber; to saturate filter paper for certain purposes; to coat the sides of vessels in which hydrofluoric acid is to be kept; to preserve fruit from decay; for oil baths of constant temperature; to prevent the oxidation of the protoxides; to render fabrics waterproof; as a substitute for wax in the manufacture of matches; as a disinfecting agent and as a varnish for leather.

Franz Stolba, of Prague, suggests the use of paraffine as a coating to vessels of glass or porcelain when these are acted upon by certain liquids to be set aside for crystallization. The paraffine is put into the capsules, previously well dried and heated, till it commences to boil; the vessels are then turned about so as to bring the paraffine in contact with the whole of the interior surface, and then empty out the surplus. After cooling, it is found to hold well, and the vessels are ready for use. Of course the solutions to be crystallized must not be heated, but left to spontaneous vacuum evaporation.

Wine and beer casks are rendered tight by paraffine, and its introduction into the vacuum pans of the sugar industry is said to prevent frothing of the syrup. Plaster casts are coated with it; drawing paper is rendered transparent; parlor matches are tipped with it; sponges are kept elastic; cloth is rendered water-tight, and it is employed to keep shoemakers' wax soft and pliable. A paraffine insulator is in use upon some of our telegraph lines, and as there are few substances that can attack or decompose paraffine, its value in many chemical processes is obvious. One of the most recent uses is in the manufacture of sulphuretted hydrogen gas. If sulphur and paraffine be boiled together in a flask, decomposition takes place, and a copious supply of sulphuretted hydrogen is given off. I have found this to

be one of the most convenient methods for the preparation of this gas for class-room experiments. In medicine, the preservative and protective properties of paraffine are brought into frequent requisition, and in candies it also plays a part.

Such are some of the leading features in the manufacture and uses of paraffine.—*Journal of Applied Chemistry, July*, 1872.

LINIMENT OF AMMONIA.

By R. Rother.

The officinal liniment of ammonia is prepared by mixing one fluid ounce of officinal 10 per cent. ammonia water with two troy ounces of pure olive oil. When these directions are strictly complied with, a result approaching the officinal requirements will most usually be obtained. The proportions of the two ingredients in this case are about one measure of the first to three measures of the second. Now if, however, as is often done, a pure article of oil be employed in a smaller proportion, together with a stronger ammonia, that is, about equal measures of each, then either no saponification will take place until after some time, or but very imperfectly, at the moment of mixing; quite a similar action occurs if a stronger ammonia be used, even in the officinal proportion, with pure olive oil. It is therefore evident that in connection with pure olive oil the ammonia must not only be weak, but in an inferior proportion. But it is generally known that the common commercial oil produces a much superior liniment. Yet in this case a stronger ammonia must be applied than in the officinal process; it is also necessary, in order to produce a sufficiently fluid preparation, to augment the quantity of this equal to the bulk of the oil. Commercial olive oil cannot be substituted for the pure oil in the officinal process. If one fluid ounce of 16 or 18 per cent. ammonia water be mixed with two troy ounces of commercial olive oil, a very thorough saponification is effected, but the resulting liniment is too thick to pour, acquiring a gelatinous nature similar to soft soap. With the use of officinal ammonia in this experiment, the oil is less perfectly changed, and the mixture assumes a curdy appearance; consequently neither of these modifications of the officinal proportions in the employment of commercial oil is satisfactory. The writer, however, observed that the gelatinous magma produced by the action of ammonia, on whatever oil of any kind, was instantly liquified by a

small proportion of alcohol, forming a mixture which in every respect conforms with the true characteristics of ammonia liniment. Therefore, if in the preparation of this liniment a magma results that cannot be poured from a bottle, add to the jelly a quantity of strong alcohol equal to one-sixteenth of the whole volume.—*The Pharmacist, June,* 1872.

MATERIA MEDICA NOTES.

By James Collins, F.B.S.E.,

Curator of the Pharmaceutical Society's Museum.

Gum Euphorbium.—Dr. E. Cosson, in an interesting note on *Euphorbia resinifera*, Berg, read before the Royal Botanical Society of Belgium, verifies the statement of Berg, that the Gum Euphorbium of commerce belongs to the species to which Berg gave the name of *E. resinifera.* Dr. Cosson found in Von Martius' collection at Brussels, a specimen of Gum Euphorbium with sufficient of the dried stems of the plant producing it to give a good idea of the plant. Probably Von Martius received these specimens from his brother, Dr. C. W. T. Martius.

The history of this acrid gum is very interesting. *E. canariensis*, L., *E. officinarum*, L., *E. antiquorum*, L., and *E. tetragona*, Haw., have each been accredited with its production; but Dr. Pereira, who examined the question with his usual critical ability, stated that only *E. canariensis*, fulfilled all the requisite conditions of locality, etc.; and that he felt little hesitation in ascribing the gum to this plant. He says (Elements Mat. Med. vol. ii, pt. 1, p. 399, 1855) that the specific characters "apply to the branches found mixed with the Euphorbium of commerce. They agree with the description and figure of *Tithymalus aizoides lactifluus*, the *Euphorbia canariensis* of Plunkenet." Miller also (Gard. Dict. vol. i, art. Euphorbium) states that in looking over some Euphorbium in a shop, he "found several spines amongst it, which exactly agreed with those of that plant." Pereira found in some specimens of the gum, spines resembling those of *E. tetragona*, Haw.

But better materials led Berg to trace its origin to a new species, to which he gave the name of *E. resinifera*, and described from dried remains picked out of the gum. *E. resinifera* has a stem one-third the size of that of *E. canariensis*, and stalked umbels, whilst *E. canariensis* has almost sessile flowers. Berg gives figures in "Berg und

Schmidt, Darstellung und Beschreibung sämmtlicher in der Pharmacopœia Borussica officinellen Pflanzen." The gum contains 20 per cent. of an acrid principle Euphorbin ($C_{26}H_{22}O_2$), so acrid indeed that in the collection of the gum the fingers became excoriated if brought into contact with it, and it is the practice to cover the mouth and nostrils to avoid the excessive sneezing which would otherwise ensue. The best general account of the production of this gum is that of Jackson, in his "Account of Morocco."

Dr. Cosson has also compared the various materials he has with a growing plant at Kew (which has not yet flowered), sent by Mr. F. Cartensen, the English Consul of Mogadore. If the history of this plant can be satisfactorily attested as being the species actually producing the gum, its flowering will be looked to with some degree of interest, as the question can then be set completely at rest.

Cinchona Rosulenta.—Mr. Howard has recently cleared up another doubtful point in the cinchona question. He has described and figured in the "Bulletin de la Société Botanique de France" a new species, named *Cinchona rosulenta*, a native of Ocana in New Granada. The vernacular name appended to the specimens of this plant, which were collected by Purdie in October, 1845, is "Quina de la tierra fria." *C. rosulenta* is very close, both in appearance and chemical composition, to *C. succirubra;* the bark, however, has a more roseate hue, and the leaves approach *C. ovata*, the nerves, however, being more rigid and prominent. Mr. Howard identifies this species with the *Quinquina rosé* d'Ocana, of M. Delondre, a figure of which is given in that author's "Quinologie;" also with M. Rampon's *Quinquina à quinidine*, described in Dr. Planchon's "Des Quinquinas;" and also with Dr. Wittstein's "*Pseudo-regia.*"

This bark has long been known in French commerce under the name of "Quina rosé," and we are grateful to Mr. Howard for thus clearly settling its synonymy, and giving it a botanical position.—*Pharm. Journ., Lond., June* 29, 1872, from *Journal of Botany.*

POPPY CULTURE IN AUSTRALIA.

Some attention has recently been given to the cultivation of the poppy for commercial purposes in various parts of Australia. From a letter which recently appeared in a colonial paper, describing the results of an experiment in poppy culture in the Bendigo district, we

gather the following interesting facts. About a drachm of the seed, which was that of the white variety, was sown in the early part of August along each of three drills, 86 feet long and two feet apart, and were lightly covered with small firewood, bark and sand. The land was rather heavy, and mixed with a good deal of quartz. It had been well manured and broken up; grape vines had been grown on it for a succession of years. On the 18th day after sowing, the young shoots were visible, looking like fine blades of grass, and they continued to grow pretty well. When between five and six inches high they were weeded out, and several were transplanted, but all the latter died, in consequence, probably, of insufficient watering and the heat of the weather. By the 20th November the others were flourishing "like great cabbages." These began to flower pretty freely by the first week in December, by the time the plants were about five feet or five feet eight inches high. The capsules produced varied in size from one inch to two and a half inches in diameter. After the petals had fallen off, and while the stamens were still clustering round the neck of the capsules, horizontal incisions half round the heads at the lower part were made. A creamy juice exuded from these cuts, which were made in the afternoon, and it soon became pinkish, and by the following morning brownish red, and of a tenacious consistence, when it was scraped off with a sharp straight knife, and collected on the edge of a small tin cover, which plan is recommended as being less troublesome and not so wasteful as the usual one of gathering the opium upon the poppy leaf. Each poppy head did not yield more than equal to the bulk of a small pea, and from all the plants raised from the drachm of seed 250 grains of opium were collected; but it must be borne in mind that many plants were entirely lost, and others not matured. The opium collected was considered to be of very good quality.

The conclusions arrived at from this experiment are that the poppy requires a certain amount of careful nursing and a pretty liberal supply of water. The distance between the rows should be three feet, to allow of the full growth of the leaves and room to pass between the plants when collecting the juice. A sheltered aspect should be chosen, so as to protect the plants from strong winds. Finally, the writer says,—"The collection of the product is not, to say the least, very agreeable; and, from the length of time occupied by it, the labor must be very cheap for the crop to pay. Perhaps the plant might be cultivated with profit near industrial schools. In conclusion, I think the

opium poppy can be successfully raised in this district if a plentiful supply of water be available when necessary.—*Pharm. Journ.* (*London,*) *June* 22, 1872.

SPONGE FISHING.

From the account given by Vice-Consul Green, of the Tunisian sponge fishery in his report to the Foreign Office, which has lately been issued, it would seem that to fish for sponges requires as much if not more skill than to fish for salmon. The sponge fishery is most actively carried on during the three months of December, January, and February, for at other seasons the places where the sponges exist are overgrown with seaweeds. The storms during November and December destroy and sweep away the thick marine vegetation and leave the sponges exposed to view. The fishery is divided into two seasons, namely, summer and winter; the former commencing in March and ending in November, and the latter as noted above. But the collection of sponges is not very productive in summer, as it is confined to the operations carried on with diving apparatus, which can only be used on rocky and firm bottomed places, or to the success of native fishermen, who wade along the shores and feel for sponges with their feet among the masses of seaweed. The sponges thus collected by the Arabs are also of an inferior quality, owing to the small depth of water in which they have grown. As, nevertheless, calm weather and a smooth sea are essential for the success of the fishermen, the winter season, although lasting three months, does not generally afford more than forty-five working days. The Arab inhabitants of the coast, Greeks, principally from Kranidi, near Nauplia (Napoli de Roumania), and Sicilians, are chiefly employed in the sponge fishery, the Greeks, however, being the most expert fishermen, while the Arabs are the least skillful. Sponges, says the "Pall Mall Gazette," are obtained by spearing with a trident, by diving with or without the assistance of an apparatus, or by dredging with a machine somewhat similar to an oyster dredge. The Arab fishermen, principally natives of Markenah and Jerbah, employ boats called sandals, manned by from four to seven persons, one of whom is the harpooner, while the others manage the sails, etc. The spearman watches for the sponges from the bows of the sandal, and the boat is luffed round upon his perceiving one, so as to enable him to strike it. The depth

of the sea in which the Arabs fish is from fifteen feet to thirty-five feet. Although the Greeks are most expert divers, the majority of them use the spear. They employ small and light boats, just sufficient to carry a spearman and an oarsman. The boat is rowed gently along, while the spearman searches the bottom of the sea by means of a tin tube of fourteen inches in diameter by nineteen inches in length, at one end of which is placed a thick sheet of glass. This tube is slightly immersed in the water, and enables the fisherman to view the bottom undisturbed by the oscillations of the surface. The spears used by the Greeks are shorter than those employed by the natives and Sicilians, but with wonderful adroitness they are enabled to reach sponges covered by sixty feet of water. They hold in their hands from three to four spears, and dart them so quickly and with such precision, one after the other, that before the first has time to disappear under the surface the second strikes its upper extremity, and thus gives it additional impetus to reach the sponge aimed at. The Sicilians, also, fish with a spear and in small rowing boats, but do not understand the employment of the tube, and have not acquired the knack of the Greeks in using three or four spears; they consequently seldom secure an equal quantity of sponges, although they are always more successful than the Arabs. The produce of the fishery is, it is stated, susceptible of considerable augmentation by an increase in the number of fishermen, and a new sponge is reproduced within a year wherever one has been removed.—*Scientific American, July* 13, 1872.

DUGONG OIL.

Among the many attractive portions of the International Exhibition, none is perhaps more worthy of attention than the Queensland Annexe, which has, we believe, been erected at the cost of that young but vigorous colony. The evidence of great material wealth in gold, copper, coal, wool, cotton, sugar and tobacco, to say nothing of arrowroot, tea, coffee, etc., are enough to show us that much may yet be expected of this portion of Australia. On one table are exhibited a large number of tins of preserved meat, and a case containing specimens of the bones, flesh, skin, meat and oil of the dugong.

As we have received several letters recently, containing inquiries respecting this animal and the economical products obtained from it,

we take this opportunity of laying before our readers such information as we have been able to obtain.

Near the case in question is a specimen of a "Dugong sucking calf," lent, as a card attached to it informs us, by Professor Flower, of the Royal College of Surgeons, Lincoln's Inn Field. This "calf," which is between four and five feet long, has a very curious head, and flippers instead of fins.

In the case are the skull and some of the rib bones of a full-grown dugong cow, a piece of the dried skin, nearly an inch in thickness, several teeth and tusks, a piece of dried meat, stated to be a piece of a calf, and which looks and, we were assured, tastes precisely like bacon, and a few bottles of a white substance not unlike lard or dripping, labelled "Dugong Oil," which is announced as "the great Queensland remedy for consumption. It appears to have been first prescribed for that disease by Dr. Hobbs, of Brisbane, who was led to use it in his practice through observing the wonderful effects the mere eating of the flesh of the animal had on the aboriginals when suffering from lung diseases. It is claimed for this oil that it is not only quite equal to cod-liver oil in the treatment of affections of the lungs, but that it is also a remedy for diseases of the stomach and bowels and general debility, indigestion and biliousness, as well as chronic coughs and wasting in children. But its chief peculiarity is reported to be that, far from partaking of the nauseousness of cod-liver oil, it is actually pleasant to eat as an article of food, and can thus be taken by people of a delicate appetite when the stomach entirely revolts from cod-liver oil.

At a dinner given by Mr. Danetree, the Agent General of Queensland, in the Annexe, on the 10th inst., dugong oil bore a very prominent part in the *menu*. Both pastry and biscuits were introduced, in which the oil took the place of butter or lard, and we are informed that the general opinion was that it was in every way a success. The London correspondent of the *Newcastle Daily Express*, in writing to that journal says, "Lighter or more delicious pastry than that in which this oil had taken the place of lard, I never tasted. The same thing may be said of the biscuits, which were everything that biscuits ought to be."

The fish, or more properly speaking, the animal, from which this oil is procured, is a herbivorous cetacean, and would probably be ranked by naturalists midway between the whale and the seal. It is

found in very large numbers in the waters of Northern Queensland, and more infrequently in the southern portions as far as Moreton Bay, beyond which it does not appear to go. It is also said by various authorities to be found in the Indian Archipelago and Indian seas as well as at Mauritius. It grazes on the thick grass which in those warm latitudes grows on the shallows between the islands and along the coasts, where it usually feeds in from one to four fathoms of water, coming up to breathe at short intervals. It is not amphibious, but comes in and goes out with the tide, feeding only during high water. Like most other animals of this order, it is gregarious, and vast mobs of many hundreds and even thousands are frequently seen.

The dugong varies in length from seven to twelve feet, and its weight may be averaged at from six to seven hundred weight. The head is not unlike that of an ox lacking the horns, while the skin more nearly resembles that of the pig. The dam or cow brings forth its young alive and suckles it at the breast, holding it there with her arm-like flipper. All authorities join in attesting the wonderful attachment the female dugong has for her young, so much so that if the calf be killed, the mother makes no attempt to escape, but falls an easy prey. The skin averages from one to two inches in thickness, and the bones are perfectly solid and very similar to ivory, being very heavy, probably to assist the animal in sinking easily to its pasture. The fat meat from which the oil is procured lies next to the skin, and is not unfrequently mixed with layers of lean, giving it a perfect resemblance to bacon, like which it also tastes. Some eaten at the dinner before alluded to in the exhibition was pronounced to be very fair ham. The lean meat is said to be very similar to tender lean beef, and is readily sold in its salt state as a breakfast relish in Queensland.

It will be apparent that an article having the advantage claimed for dugong oil, that it is capable of being taken as an article of food, will command a large sale if only its medicinal properties are such as is asserted. As yet there has been no opportunity for testing the oil to any extent in England, but several very strong testimonials as to its value as a medicine, given by colonial medical men, are published by the firm interested in its sale. In the pamphlet are narrated cases of dyspepsia, debility, consumption, liver complaint, indigestion, etc., which are stated to have been cured by its use. The oil certainly deserves a trial by the profession with a view to arriving at its actual alue.

We believe we are correct in saying that at present there is not any attempt being made to introduce dugong oil to the English market. The gentleman who exhibits it at the International Exhibition has only imported a small quantity in order to bring it under the notice of the medical profession. At present the demand in the colony is quite equal to the supply, and before that can be greatly increased a much larger capital will have to be invested in the fishery. With a view to fostering this enterprise, (which in Queensland is looked upon as likely to become of very great value,) the government proposes granting special rights for a few years if a certain amount of capital is invested, so that those who go to the expense attendant on creating a new industry and introducing this novel medicine to the world, may have a fair opportunity to repay themselves for their outlay. Arrangements are now in progress to take advantage of this concession. —*Pharm. Jour. and Trans., June* 6, 1872.

DETECTION AND ESTIMATION OF PARAFFIN IN STEARIN CANDLES.

By M. Hock.*

Makers of stearin candles mix paraffin with the fatty mass in quantities up to 20 per cent. Paraffin candle makers also mix stearic acid with their paraffin and attribute valuable properties to such a mixture, as far as candle-making is concerned. The attempt to determine if paraffin be present, and if so, to get some approximate idea of the quantity, in a sample of stearin and *vice versâ* by means of the comparison of the melting point and specific gravity of such a mixture is shown to be useless, as these vary according to the source from which the paraffin is obtained, as also in the case of the stearic acid, since the pure commercial article is by no means a chemically pure article.

A good method for detecting the presence of stearic acid in paraffin has been devised by R. Wagner, viz. by treating a boiling solution of the paraffin in alcohol with an alcoholic solution of neutral lead acetate, when, if stearic acid be present, a dense floccular precipitate appears, but none if it be absent. The best method, and one which can be used quantitatively as well as qualitatively, is described as follows:—Not less than five grams of the candle are taken and treated with warm solution of potassium hydrate, which must not be too con-

*Dingl. Polyt. J., cciii, 313—315.

centrated. A soap is formed with the stearic acid, whilst the paraffin is left unaltered. Sodium chloride is thrown into the solution, whereby the soap is separated out as a soda soap, and in precipitating takes down the paraffin with it. The soap obtained is thrown on the filter and washed with cold water or very dilute spirits of wine. Thus, firstly, the sodium chloride is washed out, and finally, the soap is brought into solution and likewise washed through the filter, leaving the paraffin, which is then dried at a temperature below 35° C. so as not to fuse it. The paraffin is then treated on the filter with ether, and after repeated washing with this solvent, the ethereal solution is carefully evaporated in a weighed porcelain crucible, in the water-bath, at a low temperature. The residue consisting of the paraffin is then weighed, and the stearic acid is estimated by difference.—*The Phar. Jour. and Trans., July* 6, 1872, *from Journal of the Chemical Society.*

Varieties.

Belgian Pharmacopœia.—By a decree of the King of the Belgians, dated 27th February, a commission has been instituted of professors of the medical sciences to revise the official code of that country, and the Drs. Crocq, Chandelon, Depaise, Gille and Lesebre have been named as members of the committee.—*Med. Press and Circ., Lond., June* 5, 1872.

Paraffin.—Not long ago, the whole stock of paraffin wax in the world did not exceed four ounces, which was carefully preserved in the laboratory of Prof. Liebig as a chemical curiosity. There is now produced in Scotland alone a quantity of not less than 5,800 tons annually.—*Journ. Applied Science, Lond., July* 1, 1872.

Conversion of Pyro-Phosphates into Phosphates.—M. Prinvault.—When boracic acid is fused along with pyro-phosphate of soda, and the fused mass taken up with water, there is formed ordinary phosphate of soda; the pyrophosphate of soda has thus absorbed an equivalent of water of constitution by the action of the boracic acid. It is, the author thinks, probable that phosphoborate of soda is formed, which is decomposed by the water into boracic acid and ordinary phosphate of soda. The action of sulphuric acid, when converting pyro phoshate of soda into ordinary phosphate of soda, is explained by the author as due to the formation of an alkaline phospho-sulphate.—*Chem. News, Lond., June* 7, 1872, *from Compt. rend., May* 6.

Preparation of Caustic Soda by means of Sulphuret of Sodium.—Tessié du Motay.—The author distinguishes between processes by the dry and the wet

way. The former is described as follows: When one equivalent of sulphuret of sodium is mixed and fused with one equivalent each of caustic soda, hydrate of lime and metallic iron (either cast or malleable), and these substances heated to redness, the sulphuret of sodium is completely converted into caustic soda, while sulphuret of iron is simultaneously formed. This reaction is explained by the author as follows: The water of the hydrate of soda, or of the hydrate of lime, is decomposed by the iron which becomes oxidized, hydrogen is set free, oxide of sodium formed, and next sulphuret of iron; the soda is separated from the last-named substance by lixiviation with water. As regards the process by the wet way, the author converts the sulphuret of sodium into a basic phosphate of soda by means of a rather circuitous process (scientifically correct, but not well adapted for industrial application), and this basic phosphate of soda is next converted into caustic soda by means of caustic lime.—*Ibid., from Les Mondes, May* 2.

Influence of the Potassa and Soda Salts upon Alcoholic Fermentation.—C. Knapp.—After first referring, at some length, to the researches of physiologists on the action of the potassa salts upon the animal organism, the author details at length a series of experiments made with the view to ascertain the difference of action—if any—upon the process of fermentation of sugar solutions to which yeast is added. While it is evident, from these researches, that potassa salts accelerate the fermentation, while soda salts are inactive, the mode of action of the first named salts is not precisely clear.—*Ibid., June* 21, 1872, *from Ann. d. Chem. u. Pharm.*, 1872, *N.* 7.

On Sexbasic Saccharate of Lime.—H. Déon.—When tribasic saccharate of lime is treated with alcohol the sexbasic saccharate is obtained by elimination of one half of the sugar, exactly in the same way as by treatment of the monobasic saccharate with alcohol yields the bibasic saccharate; while the monobasic and tribasic saccharates contain water, the bibasic and sexbasic saccharates contain none. The reactions are thus analogous, and may be expressed by the following formulæ: $C_{12}H_{11}O_{11}6CaO$, derived from—

$$2(C_{12}H_{11}O_{11}3CaO+HO)C_{12}H_{11}O_{11}2CaO,$$

derived from $2(C_{12}H_{11}O_{11}CaO+HO)$; when sexbasic saccharate is combined with two equivalents of sugar, bibasic saccharate is obtained,—and when two equivalents of sugar are added to tribasic saccharate, monobasic saccharate is formed.—*Ibid., June* 28, 1872.

Digestion of Calomel—In his recent lecture on "Diet and Medicine," Dr. Symes Thompson showed that some drugs undergo a process of solution within the body, analogous to that which food passes through under the influence of the digestive juices. With the assistance of Professor Heaton he demonstrated Tuson's experiment on calomel. In one vessel (*a*) calomel and hydrochloric acid were placed, and in another (*b*) calomel, acid and pepsine. After digestion for two or three hours, at the temperature of the blood (care being taken that the heat should not rise above 140° Fahr.), the contents of both vessels were thrown on filters. The filtered liquid from the second (*b*) gave a black precipitate with sulphuretted hydrogen, showing that pepsine had ren-

dered the calomel soluble, while the liquid from the first (a) was unaffected by the gas. This experiment has served to remove much of the difficulty previously felt of accounting for the effect of a salt insoluble in acid, and is of value as showing why calomel does not produce its characteristic effects in cholera and other conditions in which the digestive powers are in abeyance, or when the active ingredients of the gastric juice are wanting.—*Nashville Journ. of Med. and Surg., July,* 1872, from *Medical Press and Circular.*

Celery as a Nervine.—A correspondent of the "Practical Farmer" says (Med. Bulletin, Cincinnati Med. Repertory), "I have known as many men, and women too, who, from various causes, had become so much affected with nervousness that when they stretched out their hands they shook like aspen leaves on windy days; and by a daily moderate use of the blanched foot stalks of the celery leaves as a salad, they became as strong and steady in limbs as other people. I have known others so very nervous that the least annoyance put them in a state of agitation, and they were in almost constant perplexity and fear, who were effectually cured by a daily moderate use of blanched celery as a salad at meal times. I have known others cured by using celery for palpitation of the heart.—*Georgia Medical Companion, June,* 1872, from *Med. Cosmos, Nov.,* 1871.

Verbena Water.—A good article may be made in the following way:

Take Rectified Spirit,	1 pint.
Grass Oil (Verbena Oil),	3 drachms.
Oil of Lemon-peel,	2 ounces.
Oil of Orange-peel,	½ ounce.

Mix. Let it stand for a few hours, filter if necessary and fill in bottles.

A very much superior article, also sold in commerce, under the name of *Extrait de Verbène,* is made according to the following recipe:

Take Rectified Spirit,	1 pint.
Oil of Orange-peel,	1 ounce.
Oil of Lemon-peel,	2 ounces.
Oil of Lemon,	1 drachm.
Grass Oil (Verbena Oil),	2½ drachms.
Essence of Orange-flowers,	7 ounces.
Essence of Tuberose,	7 "
Essence of Rose,	½ pint.

—*Canad. Pharm. Journ., May,* 1872.

Improved Blow-pipe.—A common wide-mouthed bottle is carefully fitted with a caoutchouc cork, bored with two holes, into each of which passes a piece of glass tube, bent at a right angle. On to one of these tubes is slipped the caoutchouc tube, coming from an ordinary caoutchouc bellows, whilst the other is put in communication with the blow-pipe nozzle by means of four pieces of caoutchouc tubing, joined by three pieces of glass tube, drawn to a fine point

at each end. This forms the main peculiarity of the arrangement. When air is forced into the bottle by the blower in jerks, it finds a difficulty in escaping as fast as it comes in, on account of the six fine openings in the glass tubes that it has to pass through on its way from the bottle to the nozzle, and it thus acquires a certain pressure in the bottle and flows out toward the nozzle as a regular blast. The bottle may be about 6 inches high by 3½ inches wide, with a neck 1½ inch diameter; but of course the dimensions are of no great importance. On the whole, a somewhat large bottle is better than a small one. The pieces of glass tubing we use are 2 inches long by ⅛ inch in diameter. The apparatus will be stronger if, instead of a glass bottle, a tin cylinder is used, about 4 inches high by 2 inches in diameter, with two tin tubes opening into its top. Small metal cylinders, with a fine hole at each end, may be used instead of the little glass tubes. A blowing apparatus constructed in this manner will deliver a perfectly regular blast, and will be of practical interest to those who are thinking of working in places where it is difficult or impossible to repair the ordinary instruments.—*Scientific American, July* 6, 1872.

On the light emitted by the vapor of iodine.—Salet has found that the vapor of iodine may be heated to redness like a solid or liquid. It then emits the less refrangible luminous rays which furnish a continuous spectrum. The experiment is easily made by heating the iodine in a tube of Bohemian glass. A small crystal of iodine is placed in a tube of thick glass, which is then heated strongly at some distance from the crystal. When the glass is red for a considerable part of its length, it is to be allowed to cool until it is no longer visible in the dark; the iodine is then to be rapidly volatilized. The colored vapor reaching the heated part of the tube then glows with a distinct red light. This experiment shows that the iodine becomes luminous at a lower temperature than glass. Another method of exhibiting the incandescence of the vapor of iodine is the following: A spiral of fine platinum wire is sealed in the interior of a tube of glass eight millimetres in diameter. Pure iodine is then introduced into the tube, which after expulsion of the air is sealed. If the iodine be then volatilized and the wire ignited by a battery, the spiral appears surrounded by a flame of a very rich red color, which yields the well-known interrupted spectrum.—*Am. Jour. of Science and Arts, July*, 1871, *from Comptes Rendus*, Tome lxxiv, p. 1249.

Photo-engraving on Metals.—A recent process for producing engraved surfaces in metal by photography is described as follows: A pure silver (or alloy) surface is first taken, and after finely polishing or frosting it is exposed to the action of iodine, and a film of iodide of silver thus obtained. The plate is then exposed to the action of light, in the camera or under a photographic negative, until a faint image is obtained. It is then submitted to the action of an electrotype battery (copper solution) when a well defined image of the object is obtained in copper (the copper only attaches itself to those portions of the plate which have been rendered conductors of electricity by the action of the light). The plate is next dried and etching solution poured over it, composed

of sulphuric acid and nitrate of potash (or their equivalents). This immediately attacks the shadows, or exposed portions of the silver surface, while the copper parts from the electrotype bath are not affected. After etching to the required depth, the copper deposit may be removed by *aqua regia*, leaving a finely etched image on the silver plate. To engrave on steel, copper, etc., it is first necessary to coat the surface with pure silver, after which the process is substantially the same as that above described, with some modifications of the acids or combinations used, according to the nature of the metal employed.—*Journ. of the Franklin Institute, July*, 1872,

Pharmaceutical Colleges and Associations.

Maine Pharmaceutial Association.—The fifth annual meeting of the Maine Pharmaceutical Association convened at the Library Room of the Portland Army and Navy Union, Tuesday, July 16, 1872, at 3.45 P.M. The Secretary, Mr. C. Way, being absent, on account of indisposition, Herschell Boynton was chosen Secretary *pro tem.* The minutes of the last meeting were read and approved. After the election of new members, the election of officers was postponed until the next meeting. The report of the Treasurer was then read and accepted, after which the President read his annual address, which, on motion, was ordered to be published in full in the forthcoming book of Proceedings of the Association. Mr. Schlotterbeck then read a paper upon purified extract of liquorice, which was accompanied with specimens, and was referred to the Committee of Publication. The Treasurer was authorized to deposit funds lying unused in his hands, in the savings bank, according to the exercise of his best discretion. Portions of letters from the gentlemen appointed delegates to the Maine Pharmaceutical Association from the Vermont Pharmaceutical Association, were then read, in which the writers expressed their regret at their inability to be present at the meeting, their sympathy and cordial co-operation in the object aimed at, and the salutations of the Green Mountains to the Pine Trees. The President was empowered to accredit delegates to attend the meeting at Montpelier.

The subject of change of time for the annual meeting came up, and it was voted to test the matter experimentally, and to adjourn to the third Tuesday of October next ensuing. With a vote of thanks to the P. A. and N. U. for the use of their beautiful and quiet room, the Association adjourned.

Cincinnati College of Pharmacy.—The faculty of this College has been remodelled, and consists now of Messrs. Edward S. Wayne, Professor of Materia Medica and Botany; J. F. Judge, Professor of Chemistry, and W. B. Chapman, Professor of Pharmacy.

Louisville College of Pharmacy.—Dr. Thos. E. Jenkins has retired from the chair of Materia Medica and Botany. The vacancy has been filled by the election of Mr. Emil Scheffer.

California Pharmaceutical Society.—The 31st regular meeting was held on May 8th, President J. A. Bauer in the chair. After the transaction of the usual business of the Society, the Board of Directors reported a list of sixteen names of persons eligible to be nominated for the election of a Board of Examiners, as required under the act lately passed to regulate the practice of Pharmacy in the City and County of San Francisco. The election being held, the following gentlemen were elected to constitute the Board of Examiners: John Calvert, Wm. T. Wenzell, Jas. G. Steele, Wm. Simpson and J. W. Forbes.

The Secretary called the attention of the meeting to the non-payment of dues on the part of some country members, and requested instruction; when, on motion, the Secretary was authorized to notify all delinquents of a year's duration that they would cease to continue as members if their dues were not paid prior to the next regular meeting.

The 32d regular meeting was held on June the 12th, Mr. Frost, of Vallejo, in the absence of the President, in the chair. After the usual routine of business, and the report of the Board of Directors relative to some local matters of the Society, the Board of Examiners, through their Secretary, Mr. Steele, reported that the Board had qualified before the City Clerk, and were now constituted State officers; that there had been 125 registrations in accordance with the provisions of the new law, and 23 applications not yet passed upon; that, further, the Board had concluded to extend the time of registration for ten days, and that all moneys received, after the incidental expenses of the Board were defrayed, would go into the funds of the California Pharmaceutical Society. The Board of Directors also gave notice that at the next regular meeting of the Society a resolution would be introduced creating a College Committee, with power to transact business pertaining to the establishment of a College of Pharmacy.

Wm. T. Wenzell, *Cor. Secretary.*

The Chemists and Druggists' Improvement Society, London, Ontario, was formed in September, 1871, and held its first examination, at the Mechanics' Institute, on May 6th. On May 8th a general meeting was held, at which the following officers were elected: Dr. F. H. Mitchell, President; H. Rosser, Vice-President; F. J. Osborne, Treasurer, and J. Williams, Secretary. During the summer semi-monthly meetings will be held for the study of botany, and from the first of October the meetings will be weekly for the study of materia medica and chemistry.

The Pharmaceutical Association of the Province of Quebec held its second annual meeting on May 23d, in the Laval University, at Quebec, the President, Mr. Nathan Mercer, in the chair. In his opening address the President discussed the origin, growth, aims and future prospects of the Association; springing from the Montreal Chemists' Association, a charter of incorporation by Parliament for the Provincial Association was granted; but a transfer of the examining power from the College of Physicians and Surgeons

to their Board had not been obtained; endeavoring to elevate the profession and protect the public by a higher standard of education, the Association can increase its usefulness when invested with the necessary authority.

The minutes of the last annual meeting were read and confirmed, which was followed by the reading of the annual report of the Council and of the Treasurer's report. After the election of new members, and passing votes of thanks to the retiring officers and the Rector of the University, the following gentlemen were elected members of the Council for the ensuing year: John Kerry, H. R. Gray, Alex. Manson, Jas. Goulden, H. Lyman, J. D. L. Ambrosse, A. Picault, C. L. Coverton, N. Mercer, E. Muir, E. Giroux, W. E. Brunet.

The British Pharmaceutical Conference will hold its annual meeting, at Brighton, on Tuesday, August 13th, at 10 o'clock A.M.

German Apothecaries' Society.—The time of the meeting of the North and South German Societies has been fixed for September 3d, 4th and 5th. The meeting, at which the two societies will be merged into one national society, will be held at Frankfort-on-the-Main, simultaneously with the meeting of the American Pharmaceutical Association, convening at Cleveland, Ohio.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The Twentieth Annual Meeting of the "American Pharmaceutical Association" will be held in the city of Cleveland, on the first Tuesday (3d) of September, 1872, commencing at 3 o'clock P.M.

It is confidently expected that the hopes expressed at the last meeting will be fully verified, and a large number of applications for membership presented to the Association at this meeting.

The Local Secretary, Henry C. Gaylord, of Cleveland, will receive the goods intended for exhibition during the session, and druggists as well as manufacturers of chemicals and articles connected with pharmacy and its collateral branches are respectfully requested to send the goods to be exhibited free of charge, and accompanied by an invoice and a full description of the articles.

Enno Sander, *President*,

St. Louis, *June 24th*, 1872.

Editorial Department.

The Next Meeting of the American Pharmaceutical Association.—Before our next issue will reach most of our readers, the members of the above Association will be on their journey to Cleveland to attend the twentieth annual meeting, which, it is expected, will be equal in interest and importance to the preceding ones. Many of the members from the Atlantic States will prob-

ably go there by way of Niagara Falls, where it has been proposed to spe Sunday, September 1st. Full delegations are expected from the different colleges and local societies, and several new organizations will most likely be represented.

The headquarters of the Association during the meeting will be at the Kennard House, where ample accommodations and a reduction from the regular charges have been provided.

Blank forms of application for membership may be obtained from the permanent or local secretary, the officers of the Association and from the members of the Executive Committee; all applications should, if possible, reach the proper officers previous to the meeting.

Unreliable Elixirs.—Mr. Scheffer's interesting paper, published on page 346 of the present number, shows conclusively how unreliable some of these preparations are. To use pepsin in a mixture is no proof that this delicate agent retains its virtues unaltered—an important lesson to the pharmacist, but of greater importance even to the physician.

How reliable the numerous other elixirs are, with which the market is flooded by manufacturers in all parts of the country, we are unable to say; but of some, at least, we entertain well founded doubts regarding their pretended composition and efficacy, which not unfrequently may be due to the stimulating effects of the aromatics and alcohol, of which they are made up.

The subject, it appears to us, is receiving by far too little attention on the part of the medical and pharmaceutical professions. Physicians are apt to place their reliance—as Mr. Scheffer correctly remarks—in the firm by whom the preparation is made, and in the name by which it is designated, while pharmacists frequently submit too readily to the clamor for pleasant medicines, without endeavoring to disabuse the physician's mind in regard to the pretensions of many of these quasi nostrums. The Newark Pharmaceutical Association and the Maryland and Louisville Colleges of Pharmacy, have taken a decided position towards this class of proprietary medicines, and if the American Pharmaceutical Association, at the approaching meeting, would act in the matter in a manner similar to that suggested last year by Mr. E. Walton Russel,* the benefit conferred thereby upon two kindred professions and upon the sick would be incalculable. The end in view would certainly justify the labor necessary to accomplish it.

Pulvis Glycyrrhizæ compositus has been recommended by the "Practitioner" as a mild and efficient aperient, and the formula, taken from the sixth edition of the Prussian pharmacopœia has been republished in many medical journals in this country. On page 292 of our last number we have given the formula as contained in the seventh edition of the pharmacopœia named, and, through a strange oversight, said that it differed from the former; the two formulas, however are identical, and differ merely in the quantities, which in the one are given in *definite weights* (ounces), and in the other in *parts by weight*.

*See American Journal of Pharmacy, , 1871, p. 381.

The Indiscriminate Sale of Poisons is justly criticised in an editorial of the Atlanta Medical and Surgical Journal for June. The legal regulations of the traffic in these articles are sufficiently stringent in many States to be regarded as salutary safeguards; and wherever such restrictions have not been enacted, the reputable pharmacist, of his own accord, adopts suitable provisions to guard against criminal negligence or design. He who omits those precautions which direct the attention of the purchaser or the patient to the dangerous qualities of poisonous articles, does not fulfill conscientiously the duties incumbent upon the pharmacist. We agree with the Atlanta Journal that "it will have a salutary effect, if, instead of making the blame of general application, coroners' juries fix the culpability on the offending druggist in particular." The offence of an individual is not chargeable to an entire class of persons who follow their chosen calling, fully impressed with the weighty responsibility attached thereto.

The Atlanta Journal, however, is not disposed to censure pharmacists alone for the carelessness with which poisons are sold by some; it very justly remarks:

"But the apothecaries must not be made to take all the blame in this matter. Physicians are not altogether above reproach, and much of the looseness of poison-dispensing is fairly chargeable to them. It is the frequent habit with many practitioners, especially in their visits to families with whom they enjoy a certain degree of professional intimacy, to speak of drugs and to order them with a heedless freedom which deprives the poisonous articles of their deleterious character in the minds of the consumers. Especially is this the case with the preparations of opium. If a child is in pain, the general direction 'to give it five or ten drops of paregoric' is deemed enough without a prescription. If an opiate fomentation is required, the advice is to 'get a couple of ounces of laudanum at the druggist's' for the purpose. This heedlessness is easily acquired, but it is none the less blameworthy. It reacts on those who use the drugs, to throw them off their guard; and on those who sell them, to give them a ready excuse for similar heedlessness in dispensing. At best, physicians' prescriptions are, as a rule, sufficiently loose in their construction, and a regular course of practical instruction in this subordinate but important department of the medical art would be an acceptable innovation. But, meantime, for those to whom the medicamenta are familiar therapeutic instruments, in their daily practical duty, the lesson cannot be learned too soon, that the written prescription, even kept in duplicate, is not labor lost, no matter how trivial the order; that every such prescription is a voucher for the physician, for the patient and for the druggist; and that it is the pledge of accuracy which may greatly aid to correct the evils of indiscriminate dispensing."

Censurable as some physicians are in this respect, some have acquired another habit, which is at least equally fraught with danger; we refer to the entire absence of all directions upon some prescriptions. It is obvious that the most serious results may follow the mistaking of one medicine for another when both are merely labelled: "Use as directed." We know of an instance even where a physician regarded himself grievously offended, because a pharmacist had labelled a vial, "For external use only," which contained 20 grains nitrate of silver in 1 ounce of water, prescribed by the doctor without any directions whatever.

We are far from attributing the shortcomings of some physicians to the medical profession in general, and we know that on inquiry it will be found that

not everywhere "the adjacent apothecary is (or can be) selected to provide the sure and speedy poison."

Soda Water—What is it ?—For the benefit of our readers who make, sell or drink soda water, we clip the following from the "Winedealers' Gazette," San Francisco, of April last; the information, we suppose, is strictly reliable, because the editor says that he is somewhat of a chemist himself, although we fancy that his chemical views have very little prospect of being adopted by English and German chemists and European pharmacologists, or by those of the new world either.

"We are satisfied they have imported the machinery for the new English process in manufacturing Sodas, wherein the base is *Carbonate of Potass*. The new process consists in part of passing carbonic acid gas through a solution of *sub carbonate*, and evaporating at a temperature of 212° to crystallization. This new process is indorsed by English and German chemists and European pharmacologists, as a 'wholesome effervescing draught.' The base of the old style Soda was *Sulphate of Potass* or *Salt of Tartar*.

We have long known the deleterious effects of many of our so-called Soda Waters. Some are made in the old style, even out of Bi-sulphate of Potass, which is nothing more than a high character of Nitric Acid."

The Forty-first Annual Exhibition of the American Institute will be held in New York, from September 4th to November 13th. The importance of these periodical exhibitions of new inventions and improved manufactures, and their value to both the producer and consumer, are well understood. With the increased accommodations, the approaching fair will, in point of interest, be fully equal if not superior to those which preceded it. The Secretary of the American Institute is Mr. John W. Chambers.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Archives of Ophthalmology and Otology. Edited and published simultaneously in English and German. By Prof. H. Knapp, M.D., in New York, and Prof. S. Moos, M.D., in Heidelberg. Vol. II, No. 2. New York: William Wood & Co. Carlsruhe: Chr. Fr. Muller'sche Hofbuchhandlung, 1872. 8vo, 316 pages.

This number of the Archives is fully equal to the preceding ones in elegance of dress and in the number of interesting and important essays, several of which are illustrated by well executed wood-cuts and by excellent lithographs, two of which are handsomely printed in colors. All the papers are original; about one-third of them are by American authors, the remainder written in Germany and translated here for this work. The importance of the specialities to which the Archives are devoted, and the subjects discussed by writers of note, render this periodical very valuable to the practitioner.

OBITUARY.

Dr. G. F. Reuter, director of the botanical garden and of the botanical conservatory at Geneva, died on the 23d of May.

Robert Wight, M. D., F. R. S., F. L. S., etc.—Science has lost one of her best workers, and Indian Botany one of its brightest ornaments, through the death which we record. Dr. Wight died at Grazeley Lodge, Reading, on the 26th of May, aged 76.

Dr. Wight was born at Milton, Duncra Hill, East Lothian, on July 6th, 1796, and took his degree at Edinburgh, in 1816. Soon afterwards he entered the East India Company's service, serving first as Assistant Surgeon, and subsequently as full Surgeon in the 33d Regiment of Foot. During this time, travelling from place to place, and throughout his long life in India, he devoted extraordinary talent and energy to the collection, description and illustration of Indian plants. In 1834, whilst staying in Edinburgh on furlough, he published, in conjunction with Professor Arnott, of that city, the first and only volume of "Prodromus Floræ Peninsulæ Orientalis" (1834), a work that has been spoken of as "the most able and valuable contribution to Indian Botany which has ever appeared." Dr. Wight's return to India, however, did not allow of the completion of the work.

The success of this publication had the effect of stimulating Dr. Wight to further exertions, and, on his return to Madras, he commenced a very valuable work, entitled "Illustrations of Indian Botany," two volumes of which were published, containing 182 colored plates of various Indian plants. This work was followed by a still larger one, entitled "Icones Plantarum Indiæ Orientalis," which consisted of valuable descriptions, illustrated with 2101 uncolored plates. After this appeared a third illustrated work on the flora of the Neilgherries, entitled "Spicilegium Neilgherrense." The illustrations of all these works are very good; and one cannot but be impressed with the indomitable perseverance shown by Dr. Wight in the success and fidelity of their production at the time when lithography was in a very rude state in India.

Besides these large publications, a great number of memoirs by Dr. Wight are to be found in various botanical journals. Very many valuable medicinal and other useful plants have been figured and described by him. We need only mention as illustrations: *Tylophora asthmatica*, *Argemone mexicana*, *Calysaccion longifolium*, *Mesua ferrea*, *Vateria indica*, *Ailanthus excelsa*, *Rhus succedanea*, *Moringa pterygosperma*, etc.

Dr. Wight paid great attention, not only to the developing of Indian products, but also to the introduction of other articles, such as tea, cinchona and cotton. He was for a long time superintendent of the cotton plantations at Coimbator, and published various memoirs on the subject of cotton. Dr. Wight retired finally from India in 1853, and, since that period, has been working at the Indian Flora as much as his health would allow; and by his notes and materials largely assisting others working in the same field. Dr. Wight was married in 1838, and leaves a widow, four sons and a daughter. In presence of so much work accomplished, as shown in this slight sketch of one of the ablest Indian botanists that ever lived, and remembering the labors of Roxburgh, Griffith, Royle and others, one is tempted to use the phrase, "There were giants in those days."—*Pharm. Journ. and Trans., June* 22, 1872.

Aug 30.

VOL. XLIV.] **AMERICAN** [NO. IX.

JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] SEPTEMBER, 1872. **[VOL. II, NO. IX.**

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance.* Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

TERMS OF ADVERTISING.

	One Year.	Six Months	Three Months.	One Ins'rt'n.		One Year.	Six Months.	Three Months.	One Ins'rt'n.
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Small notices of four lines—half a column—per line, 25 cents. Special rates for Cover.

NOTICE.

A Stated Meeting of the Philadelphia College of Pharmacy will be held at the College Hall, September 30th, at 3½ o'clock P. M.

CHARLES BULLOCK, *Secretary*.

NOTICE.

A large number of young men have entered their names on the Register of the College for situations during their attendance upon the lectures. Most of them have had from three to five years' experience in good stores in various parts of the country, and are willing to accept a moderate salary.

WILLIAM C. BAKES, *Registrar*,
1100 Arch St.

NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

WILLIAM PROCTER, JR., PROF. JOHN M. MAISCH, CHARLES BULLOCK, ALFRED B. TAYLOR, THOMAS S. WIEGAND, *Committee*.

AGENTS FOR THE AMERICAN JOURNAL OF PHARMACY.

HENRY HAVILAND, 23 John Street, New York.
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J. B. BAXLEY, Howard Street, Baltimore.
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WILLIAM H. CRAWFORD, 731 Washington Avenue, St. Louis, Mo.

☞ Foreign Exchanges sent to Mr. C. J. Skeet, Bookseller, 10 King William St., Charing Cross, London, W. C., directed "for the American Journal of Pharmacy, care of John Pennington & Son, Philadelphia U. S.," will reach us.

THE

AMERICAN JOURNAL OF PHARMACY.

SEPTEMBER, 1872.

AN UNUSUAL CASE, WITH COMMENTS.

By Prof. E. Parrish.

In a recent number of the *Pharmaceutical Journal and Transactions*, a case of accidental poisoning is detailed, which has more than usual interest. It appeared, upon evidence before the Coroner's jury, that the deceased was a lady, 62 years of age, who had been long an invalid, and had been prescribed for repeatedly during three and a-half years by a medical practitioner residing at some distance from her home. On a certain evening, he saw her at about 10 minutes past seven, and about 8 she received from the shop of the neighboring druggist and chemist a box of pills and a lotion, prescribed for her at the shop. A pill was given to her about five minutes afterwards, which, in forty minutes, was observed to cause a deep sleep; the label directed a second pill in four hours; but meanwhile, the husband of the lady being alarmed, went to the shop to inquire whether it would be safe to administer it. This led to the discovery that the mistake had been made of giving an overdose of morphia. Measures were immediately resorted to for her restoration; the medical practitioner was sent for, but more than an hour necessarily elapsed before he could arrive, and the patient could not then be roused, and she died in the morning about seven o'clock.

It was in evidence that the prescription was compounded by an assistant in the store, of eight years' experience, "of fair ability, and intelligent in his business." No blame was attached to his employer, who had adopted proper precautions in the management of his business, and whose candor and zeal in endeavoring to avert the consequences of the mistake were commendable.

Now, as to the causes of the mistake. It appears that the pre-

scription was as follows: Take of acetate of morphia one grain; let six pills be made; one directly, and repeated every four hours until free from pain or sickness.

In handing this to the dispensing clerk, the prescriber accompanied it by verbal directions, which he testifies were designed to convey to his mind that the one grain was to be divided into six doses, while the testimony of the dispensing clerk was that he understood the verbal direction to be that each dose was to be one grain. He, however, qualified this statement by referring to the verbal directions in regard to the lotion, as what he wished particularly to understand, and he wrote them down before making the pills. He did not put up this large dose inadvertently, for when the alarm was made known he in-informed his employer from recollection that the pills contained one grain of morphia in each.

These circumstances are worthy of note in this unusual case, which may serve to instruct those daily dispensing poisons.

1st. The giving of verbal directions as to compounding and dispensing a medicine, is an unjustifiable practice. I have known a physician to enter the door of a dispensing store, and rapidly dictate a prescription; then before the pharmacist could get it all down in black and white, and, of course, before he could read it out to him, the doctor had turned on his heel and departed.

In the case under consideration, the prescription must have been hastily written, for the dispensing clerk was first asked if he could "make it out?" to which he answered in the affirmative. Then followed the verbal directions, which seem to have been confusing, and to have so far misled the young man as that he adopted the very unusual course of putting the whole amount of the medicine ordered into each of the six doses.

2d. The custom of some physicians of writing the quantity of each ingredient designed for a single pill, and then directing 6, 12 or 24 pills to be made accordingly, is calculated to introduce confusion and lead to mistakes. A few physicians in Philadelphia, and probably elsewhere, after thus indicating on the prescription the composition of a single dose, add the letters D. t. d. xij—dentur tales doses xij—let 12 of such doses be given. In the case before us, there was an element of still greater uncertainty. "Let six pills be made," did not indicate whether pills of one-sixth of a grain each, or of one grain each, were intended; if the usual form had been adopted, in pil. vi divid., or divide in six pills, the mistake might have been avoided.

Finally, The prevalent view of the dose of the morphia salts which may be taken with impunity, is calculated to make the younger generation of pharmacists reckless in dispensing it. The fact is, as stated in evidence in this case, that "*one grain of morphia is an unusual dose, and only prescribed in very rare cases.*" The lady who fell a victim to what the Coroner's jury charitably denominated a *misadventure*, was one of a large class of debilitated persons to whom one grain is a dangerous dose. There is, moreover, a broad distinction between those surgical cases, requiring a direct and powerful narcotic to diminish the shock of an operation, and the common every-day instances in which fractions of a grain of morphia are called for.

NOTES ON ELIXIR OF PEPSIN, BISMUTH AND STRYCHNIA.

By James T. King.

Among a number of elixirs occasionally prescribed by physicians, is the elixir of pepsin, bismuth and strychnia.

From several experiments reported recently by Mr. E. Scheffer (*Am. Journ. Pharm., August*, 1872), it would appear that the combination of ammonio-citrate of bismuth with pepsin results in the precipitation or destruction of the pepsin, and leaves the preparation destitute of digestive power in so far as it depends on pepsin for this power.

This class of preparations being non-officinal, the pharmacist must either purchase them of the wholesale dealer, adopt one of the many formulas published, or devise a method of combining the ingredients required in any given elixir.

For a year or more past I have dispensed an elixir of pepsin, bismuth and strychnia, made by first thoroughly triturating 256 grains Boudault's pepsin with water, then filtering from the starchy matter, and to the filtrate adding syrup, sherry wine, glycerin and orange flower water. Next a solution of strychnia is made in water by the aid of a little citric acid, and this added to the solution of pepsin. Then 64 grains of ammonio-citrate of bismuth are dissolved in water by the aid of gentle heat, and a few drops of aqua ammoniæ added to clear the solution, care being taken to use no more of the alkali than is absolutely necessary. This solution is added to that of the pepsin and strychnia, making, when finished, 16 fluid-ounces.

This elixir is slightly acid* from the sherry wine, and it is neces-

* But will it retain the bismuth salt in solution?—Ed. Am. Jour. Pharm.

sary that it should be acid, not only on account of the pepsin being quickly injured by alkalies, but that the strychnia may be held in perfect solution.

In one fluid-ounce of this elixir, which had been made about thirty days, and which contained—

16 grains Boudault's pepsin,
4 " ammonio-citrate of bismuth,
$\frac{1}{16}$ " strychnia,

was digested some coagulated albumen at a temperature of 100° F. for six hours. There was dissolved six grains.

2d. One fluid-ounce of the same elixir, to which was added six drops of hydrochloric acid, and digested with coagulated albumen for the same time and at the same temperature, dissolved twenty and one-half grains.

3d. One and one-half fluid-ounce of wine of pepsin, made of six drachms sherry wine, and the remaining six of syrup, glycerin and distilled water, and containing sixteen grains Boudault's pepsin, treated as above, for six hours, dissolved thirty grains of coagulated albumen.

4th. Sixteen grains of Boudault's pepsin, triturated with one ounce distilled water. filtered from the starchy matter, coagulated albumen added to the filtrate, and digested at 100° F. for six hours, dissolved five and three-tenth grains.

In the second case the addition of hydrochloric acid increased the digestive action of the elixir, although it caused a precipitation of the bismuth salt; but this more nearly represents the result following the ingestion of the elixir, and the precipitation of the bismuth is not objectionable, as it is frequently given in powder.

We need some uniform standard for the preparation of such elixirs as have merit. It is true that the pharmacists of three or four cities in the United States have adopted formulas for elixirs, but those of one city differ somewhat from those of another.

The suggestion of Mr. E. W. Russel, to which Prof. Maisch called attention in the August number of the Journal, meets the approval of pharmacists generally, viz., that the American Pharmaceutical Association, through a Committee, select formulæ for this class of preparations. The Association being national in character, and its proceedings widely disseminated, their action in this matter would give more uniformity than any authority excepting the U. S. P.

Middletown, N. Y., Aug., 1872.

SYRUPUS GALLÆ AROMATICUS.

By H. Treverton Bond, M.D.

Allow me to suggest the following formula, as identical in strength and an improvement in manipulation on those in use for syr. gallæ aromaticus:

℞.	Galls, in moderately fine powder,	. .	℥ss.
	Cinnamon, Mace, "	each .	ʒij.
	Dil. Alcohol,	. . . . .	q. s.

Transfer the powders to a percolator, and pour on dil. alcohol until f℥viij of tincture are obtained. Evaporate this by gentle heat to f℥iv and add caramel and water, of each f℥ij.

Remarks by the Editor.—The recipes used in Philadelphia for making this syrup, direct brandy instead of diluted alcohol, and the resulting tincture is inflamed under a wire gauze upon which 2 oz. of sugar have been placed. Besides the flavoring principle of the brandy, the resulting syrup, therefore, contains some alcohol, sugar and little caramel. While we grant that this manipulation admits of improvement, it will be seen that the syrup obtained by Dr. Bond's formula, though identical in strength, is not identical in composition with the former.

ADULTERATION OF CARDAMOM.

By Geo. W. Kennedy.

The fruit of *Elettaria cardamomum*, as generally met with in the market, is free from adulteration, and one of those drugs that are least likely to have any foreign matter added with the view to adulterate; yet I have to report such to be the case. A short time since, on opening a package of cardamom, in the act of putting them away in their proper place, I picked one up to eat without looking at it, and was not long in discovering I had something else and not cardamom at all, as it was destitute of that fine aromatic odor and taste characteristic of cardamom. Upon examination it proved to be orange seed, and I also discovered among the cardamom some unroasted coffee seeds. The adulteration, I may state here, was not a very good one, it being very easily detected, and yet a person might sell a large amount of such an article and never notice the admixture,

especially if it is but small in amount. In this case, between four and five drachms of the adulteration was recovered from the pound, or nearly four per cent. of the weight of the drug.

Pottsville, Pa., July, 1872.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Oxidation of Mercury.—W. Kirchmann observed that a solution of permanganate of potassa, when agitated with quicksilver, oxidizes the latter in the cold to mercurous, and when hot to mercuric oxide. The oxide of manganium separated at the same time is dissolved by muriatic acid, which, combining also with the oxide of mercury, forms insoluble calomel in the first case, or in the other corrosive sublimate, entering into solution.—*Archiv d. Pharm.*, 1872, *June*, 203.

For the Silvering of Glass Vessels the following process is recommended by R. Siemens: The glass vessel is first cleaned from every trace of fat by rinsing it with a solution of carbonate of potassa, then with alcohol, and finally with distilled water. A solution containing 4 grm. nitrate of silver and 2·5 grm. aldehyde-ammonia to 1 litre of water, is poured into the vessel, which is placed into a water-bath, is gradually heated to 50° C. (122° F.) Silver is now separated; the layer has at first a blackish appearance, but acquires more lustre as it becomes thicker. When a bright mirror of silver has been obtained, the solution is at once poured out and the vessel rinsed with distilled water. The liquid contains nitric, nitrous and acetic acids, and acetate of ammonia; the greatest portion of the silver is obtained again in the metallic state as powder. From 10 litres of the solution, containing 40 grm. nitrate of silver, the author obtained metallic silver which yielded 35· grm. nitrate.—*Ibid.*, 233—235.

Claret.—Mayer observed that three kinds of claret, which contained between 10 and 12 per cent. of alcohol, yielded, with ammonia, crystals which further analysis proved to be phosphate of lime, and regards this fact at least as suspicious that they may have been adulterated with cider. Another kind, containing 15 per cent. alcohol, contained phosphate of magnesia.—*N. Jahrb. f. Pharm.*, 1872, *June*, 330.

Grape and Fruit Wines.—After reprinting the communication of M. (F. F. Mayer, of Heilbronn), a short extract of which was published in our March number, page 105, Dr. Wittstein refers to two other publications on the same subject:

About 20 years ago* Winckler found that the characteristic constituents of grape wine are bitartrate of potassa, œnanthic ether, at least 5 per cent. of alcohol and little tannin, while fruit wine contains lactate of lime, free lactic acid, more tannin (turning salts of iron green), and not over 4 per cent. of alcohol. The peculiar odor of cider seems to be partly due to butyric acid.

Tuchschmid† stated, in 1870, that fruit wine yields between 0·11 and 0·40 per cent., grape wine never over 0·049 per cent. carbonate of lime. After estimating from a wine which is adulterated with cider, the lime contained therein as carbonate, the percentage of the adulteration with the latter may be approximately calculated from the above figures.—*Wittstein's Viertelj. Schr. f. pr. Pharm.*, 1872, 400.

Analysis of Two Hair Colcr Restorers. Dr. Wittstein has analyzed Mrs. L. A. Allen's Hair Restorer and found it to contain in one bottle 90 grains milk of sulphur, 125 gr. sugar of lead and 1480 gr. glycerin.

The hair restorer made by Fr. Brabender, apothecary in Cleve, contains in one bottle of 12 oz. capacity, 73 gr. sugar of lead, 250 gr. hyposulphite of soda and 260 gr. of glycerin.—*Ibid.*, 412.

Lactucarium and Thridace.—French lactucarium is obtained from incisions into the stem of *Lactuca sativa*, and by drying the exuded milk juice. German lactucarium is made, in the same way, from *Lactuca virosa.* Thridace is the expressed juice of *Lactuca sativa*, which is heated, strained and evaporated. In comparing the three, L. Buttin obtained the following results:

	Ashes.	Soluble in Alcohol.	Soluble in Water.
German Lactucarium,	10·63 per ct.	46·66 parts.	48·83 parts.
French Lactucarium,	7·50 "	46·85 "	21·42 "
Thridace,	33·90 "	39·50 "	Completely.

—*Ibid.*, from *Schweiz. Wochenschr. f. Pharm.*, 1871, *No.* 37.

* Jahrb. f. Pharm., xix, 335.

† Berichte d. d. Chem. Gesellsch. zu Berlin, 1870, No. 19.

Adulteration of Opium.—G. Righini received, as best Smyrna opium, small cakes of about 100 grm., carefully wrapped in leaves, of strong odor and hard in consistence. Internally the cakes contained small globular bodies, paler in color, and fragments of dark green leaves, which appeared to be cut tobacco leaves, and amounted to 30 per cent. of the whole. The opium yielded only 4 per cent. morphia.—*Ibid.*, 445. *Annali di Chimica.*

Xylol in Small-pox.—According to the experience of A. Burkhart, xylol neither hastens the appearance of the eruption, nor does it shorten the different stages of the disease; it has neither an antifebrile, nor a specific action; but, by its action upon the eruption in the throat, and the angina accompanying it, xylol may save the lives of patients, and in this respect it far surpasses chlorate of potassa and chlorinated lime. This action alone is sufficient to render xylol an important and indispensable remedy for pustular small-pox. Its deodorizing and disinfecting properties make it the more valuable.—*N. Jahrb. f. Pharm.*, 1872, *June*, 347. *Aerztl. Intelligenzbl.*

Active Principle of Ergot.—The toxical constituent of ergot is, according to the physiological experiments of Eug. Haudelin, soluble in water, but nearly insoluble in alcohol; it dissolves in diluted alcohol in the presence of acetic acid, from which solution it is partly precipitated unaltered. When treated with hydrate of baryta, it is decomposed. Treatment with corrosive sublimate and tannin alters this principle and destroys its activity. Iodide of bismuth and potassium precipitates it incompletely. The author argues, therefore, that ecbolina, obtained by Wenzell from the precipitate with corrosive sublimate, and ergotina, obtained from the filtrate, cannot be the real active principles of ergot.—*Ibid.*, *March*, 157.

Distilled Lavender Water is preferred by Dr. Delioux, and regarded as superior to rose and water plantain water in affections of the eye; in slight opthalmias it answers, as a wash, for severer ones it is the best vehicle of collyria.—*Rép. de Pharm.*, 1872, *June*, 458. *Bullet. thérap.*

Cement for Glass and Porcelain Vessels.—½ oz. of Russian isinglass is soaked in distilled water until it has swelled considerably; the excess of water is then poured off and enough alcohol added to

cover the isinglass, which is dissolved with the aid of heat. To this a solution of ¼ oz. of mastic in ¾ oz. alcohol is added, and then ¼ oz. of bruised ammoniac, the whole is well agitated and evaporated in a water-bath until it has the consistence of thick glue, when it is poured into a glass, in which it solidifies like jelly. When used, the cement is liquefied by immersing the bottle in warm water, the cement is spread with a pencil upon the clean edges of the broken pieces, these are pressed together and set aside in a warm place. If the heat was sufficient, the vessel may be used after 24 hours. The cement becomes very hard. Ammoniac in grains is the best for this purpose; the brown-yellow cake ammoniac may be employed, but the dark brown sticky varieties are useless.—*Chem. Centralbl.*, 1872, *No.* 25. *Phot. Arch.*, 1872, 80.

An Improved Gas Burner has been constructed by J. W. Cremin. The gas circulates in a hot metallic vessel under the burner, and is there heated, whereby its illuminating power may be increased about 60 per cent.—*Ibid.*, *No.* 26. *Polyt. Journ.*, cciv, 187.

Tooth Powder.—Enderlein prepares a tooth powder, of a beautiful red color, as follows: 40 p. cochineal, 30 p. alum, and 320 p. cream of tartar are mixed with sufficient water, and the mixture heated for several hours in the steam-bath. 250 p. cuttlefish bone are then added, the mixture is exsiccated and powdered, and the powder levigated with sufficient oil of almonds until it acquires a velvety appearance. A suitable perfume is attar of rose, or a mixture of one part of attar of rose and 2 p. oil of peppermint.—*Pharmac. Zeitung*, 1872, *No.* 53.

Mercurial Ointment.—For extinguishing the mercury rapidly it has been recommended to triturate it with thick plasma (starch and glycerin).—*Ibid.*, *No.* 54.

Syrup of Eucalyptus.—100 grm. of the cut leaves are macerated in 1 litre of boiling water, in a covered vessel, for six hours, and expressed. The infusion is decanted from the sediment, and in every 100 grm. of the liquid 190 grm. of sugar are dissolved, in a covered vessel placed in the water-bath.—*L'Union Pharmaceutique*, 1872, *June*, 164.

ON KOUSSIN AND ITS MEDICINAL USE AGAINST TAPEWORM.

By Dr. C. Bedall, Apothecary at Munich.*

In his lengthy essay, the author first gives a brief description of the three kinds of tapeworm which have been observed in the human intestines, *Tænia Solium*, *T. mediocanellata* and *Botriocephalus latus*. The successful removal of these parasites depends, in a great measure, upon some casual circumstances, among which the following appear to be the most important: age, constitution and habits of the patient, the species of the tapeworm, the length of time it has been in the intestines, the period in which parts of it are spontaneously expelled, and the influence exerted upon it by different victuals and medicines.

The older remedies for tapeworm are the rhizome of male fern and the root bark of pomegranate; after about the year 1840, kousso, kamala and saoria were introduced from Abyssinia and Malabar. Each of these remedies has had, and still has, its advocates and its opponents among physicians; but the large dose and disagreeable taste, as well as the preparatory diet required when male fern and pomegranate are used, render these two rather objectionable; saoria requires likewise a large dose, and overdoses are apt to produce unpleasant results; kamala is not open to these objections, but it is frequently largely adulterated, while the large dose of powdered kousso, which is sometimes thrown up by the patients, is the fault that has been found with the latter.

To obviate the employment of the powder, a resin had been prepared, and seems to have answered its purpose better than the powdered flowers. Proximate analyses were made by Wittstein, St. Martin, Viale and Latini, Pavesi, Willing and Bedall. The first and last of these analyses agree in the main results, and prove the presence of tannin, volatile oil, valerianic acid and two resins; one black green and tasteless, the other yellowish-white, bitter and acrid. The hagenic acid of Viale and Latini, and the alkaloid koseina of St. Martin could not be obtained. Pavesi's koussin or tæniin is identical with Wittstein's bitter and acrid resin, but does not exist only in the pollen, as supposed by Pavesi, but likewise in a small proportion in the stalks and pedicels.

* Translated and abridged from Wittstein's Vierteljahresschrift, 1872, p. 339–357.

The best process for obtaining this principle is that of Pavesi, and is analogous to the one by which santonin is obtained; kousso is repeatedly treated with alcohol, to which hydrate of lime has been added, the residue is boiled with water, the different liquids mixed, filtered and distilled, and the residue treated with acetic acid, which separates koussin as a white flocculent precipitate, soon becoming denser and resin-like, and on drying easily turning yellowish, or, at a higher temperature, brown. The yield of kousso, free from stalks, is three per cent. Carefully prepared and dried, koussin has, in larger quantities, a peculiar odor of Russian leather; it has a persistent bitter and acrid taste, a yellowish or yellowish-white color, and under the microscope an indistinct crystalline appearance. It is very sparingly soluble in water, but readily in alcohol, ether and alkalies; its empirical formula is $C_{26}H_{22}O_5$.

Koussin has been used therapeutically for the last thirteen years, and the author cites a number of cases from Munich, Dresden, Vienna, Paris, Stuttgart and other places, in which koussin proved effectual in the hands of various physicians. A factitious koussin is met with in Germany, which is either the black resin spoken of above, or has been prepared analogous to resin of jalap; it is a black powder, almost tasteless, and of a disagreeable odor.

The author arrives at the following conclusions:

1. Koussin is the only active principle of kousso, and deserves the preference before the latter.

2. It is preferable to other tænifuges, because 2 scruples = 2·5 grm. are sufficient for dislodging the tapeworm, and the remedy, divided according to age and constitution into two or four powders, is conveniently taken between wafers, and usually agrees well with the patient, producing, in exceptional cases, merely transient nausea or vomiting.

3. In the doses mentioned, koussin leaves no ill effects of any duration; on the contrary, most patients enjoy good health and appetite after the tapeworm has been expelled.

4. Koussin needs no preparatory treatment in diet or with other remedies; but in obstinate cases it may be advisable to aid its action by giving some Epsom salt or other convenient purgative.

5. If, after the use of koussin, the tapeworm should not be entirely expelled and its small head not be found, it is well to ascertain whether it has not been killed and the head is not subsequently discharged.

6. If the treatment be unsuccessful, this should not be charged to the koussin, but rather to casual circumstances which counteract, more or less, the effects of this remedy.

ON THE ABSORPTION OF OZONE BY WATER.

By L. Carius.*

The author prepared ozone according to Soret's method,† by electrolysis of cold diluted sulphuric acid, using wires of platin-iridium as electrodes. The absorbing water was kept at a temperature of between 0·5 and 3° C., the current of gas was continued for two or three hours, and the unabsorbed gas carefully removed. This ozonized water was then examined, with the following results:

1. It had, unmistakably, a strong characteristic odor of ozone.

2. It became brown-yellow from liberated iodine on the addition of iodide of potassium solution, and the further addition of starch solution caused a blue color, and after awhile a bulky blue sediment. If ozone water was added to a solution of iodide of potassium and starch, the blue color at first produced would disappear on the further addition of ozone water, owing to the oxidation of iodine to iodic acid; for the same reason, an aqueous solution of iodine is decolorized by ozone water.

A solution of protoxide of thallium added to ozone water in a closed vessel, separates, after some time, brown flocculent peroxide of thallium.

Ozone water decolorizes, energetically, indigo and litmus, and colors tincture of guaiacum deep blue.

3. Ozone water exposed to the air soon loses its odor and action upon the reagents mentioned before; and if air is passed through the solution, the ozone completely disappears, the displaced gas showing the presence of ozone by the proper reagents.

On bringing silver leaf in contact with ozone water, the appearance of peroxide of silver was repeatedly observed, but its formation seems to be depending upon certain favorable conditions.

The absence of nitrous (oxidized to nitric) acid was proven by its perfect neutrality to litmus paper after the ozone water had been

* Abridged from Berichte d. d. Chem. Gesellsch. zu Berlin, 1872, No. 11, p. 520—526.

† Comptes Rendus, lvi, 390.

kept for some time in an open cylinder, carefully protected from dust and ammonia.

The absence of hydrogen peroxide was established by the following experiments: Strong ozone water, treated with ether and little bichromate of potassa, did not impart a blue color to the ether; ozone water, after having been kept in a beaker glass for some time at a temperature of 30 to 40° C., did not oxidize a solution of ferrous sulphate.

The degree of solubility of ozone in water cannot be established, because it cannot be obtained in a pure state, but is always mixed with variable and large proportions of oxygen. In two experiments the author found the mixture to contain ozone equal to 0·929 and 1·211 per ct. by volume. 1000 c.c. of the aqueous solution of ozone were found to contain 0·0109, 0·0091 and 0·0083 grm. of ozone, which figures are equal at 0° C. and 0,m76, to 5·11, 4·24 and 3·86 c.c.

The author examined, also, the ozonized water* as prepared by Krebs, Kroll & Co., of Berlin, and found it free from hydrogen peroxide, nitrous and nitric acid. 1000 c.c. contained 0·00955 and 0·00871 grm., equal to 4·45 and 4·06 c.c. of ozone.

ON THE COMMERCIAL CHLORIDE OF ALUMINIUM.

By Alexander Mueller.†

The author has analyzed samples of so-called chloralum and chloralum powder, of English manufacture, with the following results:‡

I. *Chloralum.*—A thin light yellow liquid, with a faint odor reminding of crude muriatic acid, and of a moderate acidity.

16·1	per cent.	chloride of aluminium.
1·7	"	chloride of calcium (containing magnesium).
0·1	"	sulphates of alkalies.
1·2	"	muriatic acid.
19·1	"	soluble constituents, anhydrous.
80·9	"	water.
100·0		

* See, also, Amer. Journal of Pharmacy, 1872, March, 105.

† Abridged from Berichte d. d. Chem. Gesellsch. zu Berlin, 1872, No. 11, p. 519.

‡ See, also, Prof. Fleck's analysis in Amer. Journ. of Pharmacy, 1872, June, page 268.

The chloride of aluminium present corresponds to a mixture of 21 per cent. chloride of sodium with 17½ per cent. anhydrous sulphate of alumina, or 40 per cent. crystallized sulphate of alumina, or 57 per cent. potassa alum.

II. *Chloralum Powder.*—White, pulverulent, resembling chlorinated lime, but inodorous.

20·9 per cent.	water.			
40·7 "	matter soluble in water, viz.:			
		18·4 per cent.	chloride of aluminium.	
		4·1 "	sulphate of alumina.	
		9·1 "	sulphate of lime.	
		14·1 "	sulphate of soda.	
15·5 "	alumina soluble in muriatic acid.			
22·9 "	insoluble in muriatic acid, viz.:			
		13·5 per cent.	kaoline, anhydrous.	
		9·4 "	silicic acid.	
100·0				

Fluorine and phosphoric acid were not found.

The author regards these articles as by-products of the soda factories, to utilize the muriatic acid. Crude muriatic acid, containing but little iron, is allowed to act upon slightly roasted porcelain clay, yielding the liquid preparation chloralum. The sediment, dried at a moderate heat, with the addition of some chloride of sodium and sulphuric acid, or of the residue from rectifying crude muriatic acid, constitutes chloralum powder.

PRELIMINARY NOTE ON OZONE.

By Charles Thomas Kingzett.

Houzeau found that the oxygen evolved by treating baric peroxide with hydric sulphate contained an agent possessing the properties of ozone—that is to say, it liberated iodine from potassic iodide, and was capable of oxidizing ammonia. I am not *aware* of any experiments in the same direction upon oxygen derived from other sources.

Whilst experimenting upon ozone, I was desirous of ascertaining if oxygen from all sources possessed the properties ascribed to that obtained from baric peroxide and hydric sulphate; therefore I made the subject a matter of experiment, and obtained amongst my results the following:—

Oxygen obtained by either—

(*a*). Heating mercuric oxide, and passing the resulting gas through strong and pure potassic hydrate (to absorb any nitrous fumes);

(*b*). Acting upon potassic dichromate with hydric sulphate;

(*c*). Acting upon potassic permanganate with hydric sulphate; or,

(*d*). Heating *native* or *artificial* manganic dioxide;—liberated iodine from potassic iodide, forming, when starch was present, the blue iodide. In short, from every source I have tried, the oxygen produced never lacked these properties. Of course contact of the gas examined with organic matter was avoided as far as possible.

Thus in (*a*) the tube containing the mercuric peroxide was drawn out, and bent twice at right angles, and then passed into a tube holding the potassic hydrate, the column depth of which was in every experiment more than four inches. (*b*) and (*c*) are readily performed in open test-tubes, placing at the mouths of the tubes the paper soaked in the potassic iodide and starch mixture.

But acting upon potassic permanganate with hydric sulphate requires care, for (as is well known) if the mixture be heated, vapors of permanganic acid are evolved and detonations occur. I purposely obtained these detonations twice by placing tubes containing the mixture in a steam-bath. The contents of the tubes smelt strongly of ozone afterwards, just like the fishy odor obtained by the passage of electric sparks through moist air or oxygen; and on holding a piece of iodide paper over the mouths of the tubes, iodine was rapidly liberated.

In (*d*), the manganic dioxide may be heated to bright redness, and yet the vapors evolved contain, or in some way produce, the agent alluded to before. This is remarkable, considering that ozone is destroyed instantaneously at 300° C., and slowly at much lower temperatures. However, at present, I have no proof to offer that it *is* ozone; the moisture on the iodide paper may share in the reactions which occur.

I have ventured these statements in the belief that the facts stated are not *generally*, if at *all*, known. If they are known, my experiments merely confirm them, and if they are not known and explained, I hope to be able to show by a series of experiments which I am now making, not only the effects but also the causes.

St. Ann's, St. Helen's, Lancashire, May 14, 1872.

—*Chem. News*, *May* 24, 1872.

ON ÆSCULIN.

By Robert F. Fairthorne.

This principle is easily separated by the following process:—A quarter of a pound of horse-chestnut bark in moderately fine powder is moistened with half a pint of a mixture composed of three ounces of solution of ammonia (U. S. P.), and five ounces of water. This is packed in a glass percolator, in the neck of which a plug of cotton has been placed. A pint and a half of a weak solution of ammonia is poured on the bark, and allowed to pass slowly through.

The first half-pint of the liquid that displaces is set aside in a capsule and evaporated spontaneously until reduced to a syrupy consistence. The remaining pint is brought to the same condition as the first portion, by means of a sand-bath and gentle heat. These products are then mixed with one and a quarter ounces of pure alumina by rubbing together in a mortar. Allow the mixture to dry, which requires a few hours. Powder the dried mass, and boil it for five minutes in a flask with six ounces of alcohol (95 per cent). Filter this whilst hot, and pour six ounces more of boiling alcohol on the residue in the filter. Place the filtered liquid in an evaporating dish, and allow it to evaporate spontaneously until reduced to a semi-solid state, when impure æsculin will be found in a crystalline condition contaminated with some dark-colored extractive matter.

In order to separate the æsculin from the coloring matter without loss, mix two ounces of cold water with it in the capsule, and having scraped it thoroughly from the bottom of the vessel, pour it into a vial. Add one fluid-ounce of ether to this, and agitate for a few minutes. Allow it to remain undisturbed for twenty-four hours. Afterwards pour the mixture on a filter, and when the dark-colored fluid and the ether have passed through, wash with about two drachms more of cold water.

The æsculin is now nearly pure. In order to make it perfectly so, all that is necessary is to allow it to dry in a warm place, powder it, pass half an ounce of pure benzole through it after having been placed on a filter; then treat it in the same manner with an ounce of ether so as to remove any paviin that may be present, that substance being readily dissolved by ether.

Sixteen grains appears to be the average weight of the purified active principle obtained from 4 avoirdupois ounces of the horse-chestnut bark by this process. After trying various methods for extract-

ing æsculin, I found none so satisfactory as this one, either in regard to simplicity, the quantity yielded, or the quality of the production.

Æsculin, as thus prepared, appears to the unaided sight as an amorphous powder, almost white, being of a slightly pale buff shade. Under the microscope (magnified 220 diameters), it is proved to consist of minute, needle-shaped crystals.

From its alcoholic solution its crystals arrange themselves in stellular tufts, the aciculæ, pointed at the ends, radiating from a common centre in every direction, forming a very beautiful object, the transparent prisms glistening with more than ordinary lustre.

I find that it is soluble in the following liquids:—Alcohol, acetic ether, strong acetic acid, solution of carbolic acid, solution of the hydrate of chloral, and in the alkaline solutions.

When æsculin is added to nitric acid it becomes yellow, and if ammonia in excess is added to this mixture, a bright cherry-colored liquid is produced. When sulphuric acid is substituted for the nitric acid, and ammonia added, the same color appears.—*Chem. News, July* 5, 1872.

THE RELATION BETWEEN THE PHYSICIAN AND PHARMACEUTIST.

By Th. Schumann, Atlanta, Ga.,
Member of the American Pharmaceutical Association.

Audiatur et altera pars!

A report of certain resolutions adopted by the Georgia Medical Society, at Savannah, appearing in the papers, and a private discussion of the same, induces the writer to make a few remarks on certain points in regard to the relation between the physician and the apothecary. Will you please hear the views of one who is by his vocation deeply interested in these questions, and whose profession is naturally associated with your profession in the development of science, and in the practical application of the achievements of science to the benefit of the human race?

By the Georgia Medical Society, in Savannah, a resolution seems to have been adopted to the effect that the druggist should not inform the patient of the nature and composition of a prescription; and if uncertain in regard to anything in the same, should consult the pre-

scribing physician, and not substitute his own prescription for that of the physician.

If, in the State of Georgia, proper regulations existed regarding the practice of medicine and the keeping of drug-stores—or, rather, if the rules and regulations existing were in practical operation—the resolution would not have been necessary; but while as it is, all sorts of persons, not only regular pharmacists, but physicians and others who have no pharmaceutical education, keep drug-stores, all kinds of irregularities may happen.

In ancient times, the savant was priest and physician—gathered roots and herbs, and prepared his draughts himself, as is yet the case with savages. Since the science progressed to its present point, it is impossible for a man to be perfect in all its branches. Medicine and pharmacy had long ago to be divided into separate departments, and medicine itself seems to be already undergoing the same process of division. Pharmacy—especially chemistry, as a part of it—has acquired such large dimensions, that a man has to be an industrious student to arrive at a tolerable degree of perfection. If a man tries his hand in more than one of these departments, he is apt to become a jack-of-all-trades, and master-of-none; what we properly style a quack.

The regular pharmacist knows his place; he does not wish to transcend his bound; he wishes only to prepare the physician's prescriptions, and does not care for prescribing himself. But he finds his satisfaction in preparing the medicines in the best manner and of the best material. To this end, he has to study botany, chemistry, materia medica, but not anatomy, pathology, and therapy; and therefore cannot, and does not want to, apply those sciences, and cannot take the responsibility even in a case of emergency. To interfere with the orders or the duties of a physician, would be assumption on his part. The physician, however, who keeps a drug-store, might easily be induced to consult his own view of a case in question, and might act consequently; and if many drug-stores are kept by physicians, as is the case in Georgia, the medical associations are right to adopt resolutions against the irregularities in question. The pharmacist, however, calls it, properly, quackery if any one keeps a drug-store who is not entitled to it by his pharmaceutical education, and is not at all astonished to see such a druggist-physician violate the laws of his own profession. The best guard, therefore, for both the physician and the

pharmacist, against quackery of any kind, would be the enforcement of a proper law regulating the practice of medicine and pharmacy respectively, and especially the keeping of drug stores.

Another resolution says that a druggist should not repeat a prescription without the order of the prescribing physician. It will be very difficult to enforce this regulation in practice, and it is to be feared, therefore, that it would remain a dead law, disregarded by everybody, although no one might deny its utility, and especially its propriety in principle. The physicians seem to be inclined to claim the prescription as their property. The pharmacist does not claim it at all, although he has it in his possession, and possession is, as every body knows, sometimes the best title. But the question arises, whether it is not the property of the patient. If the physician is called upon by a patient for medical advice, he gives part of it in words, regulating the patient's deportment, diet, and so on—part of it in ordering the medicaments to be used. In most cases, the prescription is the least important part of his advice; and in many cases the patient has to judge for himself how long he should continue to follow his advice and to take the medicine. The patient has to judge for himself, or his friends for him, at what moment he needs the physician's advice, and also decides how long he is to continue.

Under all circumstances, it would be very difficult to enforce the rule proposed by this resolution. The courts are not very likely to sustain the claim of the physician. Innumerable disputes would arise, because the druggist would find it very difficult to refuse any of his customers a repetition of their prescriptions; he would also find it very much against his interest to do so. It is not to be seen what the physician could do should the druggists unite in order to oppose his wishes. It has been said the physicians might, in order to enforce the proposed rule, cease to write prescriptions, and rather dispense the required medicine themselves. But the dispensing of medicines by physicians, except in cases of necessity, is surely a conquered stand-point—not practicable for the following reasons:

1. The dispensing physician would, by this measure, go back to a more primitive state of civilization; he would be compelled to pay more attention to things not strictly belonging to his province, and would be prevented from concentrating his study upon his special profession.

2. It would not be in accord with the great principle of division of labor, and would, therefore, turn out to be an unprofitable business.

3. The dispensing of medicines by the physician is unpopular, especially with the educated classes; it would occupy too much of his time, especially if he is extensively consulted, and would compel him to keep a large stock of medicines on hand.

Instead of bringing the two professions into opposition, it would be to the advantage of all parties concerned, if the public mind could be influenced in the proper manner. The public have to learn that they will always do best to give themselves entirely up to the skillful physician. Well-educated people will do this much easier than uneducated ones, and, therefore, physicians, as well as all other educated men, should advocate education and progress.

In some of the other States of the Union a great movement is going on, intended to induce the State Legislatures to adopt rules and regulations regarding the keeping of drug-stores, and this movement was chiefly set on foot by the pharmacists themselves. They very properly see that their own interest is best provided for by proper regulations, and that thereby the profession is elevated. Such regulations, provided they be of the proper kind, and be enforced, would guard the public against imposition by quacks—would guard the pharmacist against competition by impostors, and would guard the physician against invasion of his province on the part of the druggist. But, until we have such rules and regulations, let the physician protect the regular pharmacist against the medicine vender, who cannot be conscientious, because he has no heart for the profession; and let us, meanwhile, agitate the installment of a good law.

The physician and the pharmacist are naturally associated for the purpose of promoting their sciences and the welfare of our race by the application of their attained skill to the suffering. If in each of those sciences great achievements have been accomplished within the last century, the greater achievement was accomplished by the association of the physiologist and the chemist. The same would take place in practical life, if physicians and pharmacists would divide the labor before them—would keep their provinces separated, and at the same time associate, as they do in other countries, to elevate their respective professions, particularly if aided by appropriate legislation. Both professions would be benefitted by it as well as the public.—*Atlanta Med. and Surg. Journ., May,* 1872.

CUTANEOUS ABSORPTION.

In a recent note to the Paris Academy, M. Bernard writes as follows:—

I desire to submit to the Academy an account of experiments made in the Vincennes Asylum as to cutaneous absorption in baths of medicinal vapor. In such an institution, among patients with various chronic affections, I am favorably situated for experimenting on this question on a large scale.

Reveil's memoir on the subject gives the facts which are known up to the present. "Absorption in the bath," he says, "only takes place in rare and exceptional circumstances; it is facilitated by washing the skin, continued rubbing, and by certain irritant and solvent substances."

The bath apparatus consists of a furnace, a boiler, a chamber in which the steam coming from the boiler was charged with the substance to be applied, and a wooden cage, in which the patient was seated while enveloped in the vapor.

I used iodide of potassium in my experiments—(1) because it is not volatile; (2) because its presence in urine is easily determined by nitric acid and chloroform; (3) because, in seizing the iodine set at liberty by the nitric acid, the chloroform takes a rose color varying in a marked way with quantity, and thus, by comparing with a graduated scale, one may determine pretty accurately, and without quantitative analysis, the quantity of iodide of potassium in the urine.

The skin of the subjects experimented on was intact, without wound or scratch. The urine was examined before the bath was taken, and the absence of iodine ascertained. By a respiratory tube, the patient breathed the external air through his mouth, the nostrils being pinched. A thick sheet of caoutchouc was bound by a T-bandage over the anus; the penis was sheathed in the same material; while the hands and feet were wrapped in cotton and gummed taffeta.

The subject was then placed in the cage, and subjected for thirty minutes to vapor from the mixing chamber, into which there had been put 20 grms. of iodide of potassium. The temperature in the cage was gradually raised to 45°; the skin of the subject became wet. He was then wrapped in a woolen covering and put in bed, when profuse perspiration took place. The urine analyzed two hours after the bath gave a rose color: some taken three hours after gave a much more

lively color; thus affording clear proof of the absorption of iodide of potassium through the skin, the only way it could have entered the system. Besides, if it had entered by pulmonary passages, it would have been eliminated immediately after the bath. These first experiments, then, prove the fact of cutaneous absorption.

In a second series I sought to determine to what temperature the air, mixed with medicamental vapor, must be raised, in order to the absorption taking place.

A very sensitive thermometer was applied to the breast of the subject, and the temperature of the bath varied in the series of experiments from 30° to 38°, the time being, as before, thirty minutes. I only found the absorption take place when the temperature was 38° (or one degree above the temperature of the body). Indeed, the sebaceous matter in the cells of the epidermis only commences to dissolve at 38° when the skin is really wet; it is then that imbibition takes place, and consequently absorption. The iodide of potassium, conveyed mechanically by the vapor, penetrates the epidermis, whence it passes into the capillary blood system and the other organs.

Thus we understand how absorption does not generally take place in a water-bath. Owing to the density of the water, and its great specific heat, the temperature of such baths is usually not raised beyond 30° to 33°. Dr. Homolle remained in a bath at 34° or 35°; would he have been able to bear 38° or 39°? Besides, the liquid layer touching the skin is not constantly renewed, as in the vapor-bath.

I succeeded, however, in obtaining the cutaneous absorption at a temperature under that of the body, in the following way:—

The subject had first a simple vapor-bath, to destroy the sebaceous matter; his skin was washed and carefully dried, and he was replaced immediately in the cage, where he was exposed to the vapor of iodide of potassium for thirty minutes, the temperature of the bath varying, in several experiments of this kind, from 34° to 36°. Two hours after a bath at 34° the coloration of the urine was slightly rose; after a bath at 36° it was much more distinct.

M. Colin has described an experiment in which he allowed water charged with cyanide of potassium to fall for five hours' time on a horse's back. This caused the death of the animal; the sebaceous matter having been destroyed through percussion, and cutaneous absorption taking place.

In the sand-baths at Cette and Arcachon, which are found so efficacious for scrofulous affections, tumors, &c., what takes place? The temperature being considerably above that of the body (over 40°), the skin is wet, the sebaceous matter dissolves in the perspiration, and there follows absorption of the salts contained in the sand.

I have not been able to find free iodine in the urine; the use of nitric acid has always been necessary. Besides, iodine once introduced into the system soon forms various compounds.

In summing up his results, M. Bernard further mentions that the elimination of the salt, commencing two hours after the bath, increases in quantity till a meal is taken, after which it diminishes (probably because of the water received into the system), and then again increases. It ceases completely twenty-four hours after the bath, whatever the amount of the salt, the temperature, or the duration of the bath. A. B. M.

—*Chem. News, July* 12, 1872.

ON THE PREPARATION OF OZONE IN A CONCENTRATED STATE.

By A. Houzeau.

My experiments on the electrification of oxygen, or of air, having made me fully acquainted with the most favorable conditions for the conversion of oxygen into ozone, I have constructed several pieces of apparatus, which unite those requisites which enable the largest possible quantity of ozone to be obtained from electricity of a given intensity.

The most elementary form of these arrangements, which I call an "ozonizer," consists of a straight delivery tube, such as is commonly used in the generation of gas. In the interior of this tube I fit a copper, lead or, what is still better, a platinum wire 0·4 to 0·6 m. in length, one end of which is brought outside the upper part of the tube by a lateral opening, which is afterwards closed by wax or by the blow-pipe flame. On the exterior of the tube a wire of the same metal is wound, so as to extend nearly as far down the outside of the tube as the length of the inner wire.

The two wires being put in communication with the two poles of an induction coil, giving sparks 2 to 3 centimeters in length, immediately cause a strong ozonization of the oxygen, or of the air which is caused slowly to traverse the tube. This ozonizing tube can of course be

applied to any apparatus for making oxygen. When the inductorium is in action, the operator has only to disengage oxygen, and to collect the concentrated ozone.

It furnishes readily odorous oxygen charged with 60 to 120 milligrammes per litre of absolute ozone, accordingly as one operates at + 15° or — 30° Cent. This proportion may, perhaps, be still more augmented.*

Previous to 1854, the electrolysis of water gave three to five milligrammes of ozone per litre of odorous gas. (In 1856, Prof. Andrews could only obtain 4·1 milligrammes per litre.) In 1855, my chemical process ($Ba\ O_2 + SO_3$) nearly doubled this quantity. It is therefore now possible to look forward to the complete conversion of oxygen into ozone. If, however, the transformation of oxygen into ozone has a limit, I imagine that by the aid of powerful refrigerating appliances, we may yet be able to separate the two gases. In this case, the similarity of chemical characteristics between ozone and chlorine renders the liquefaction of the former by pressure, and reduction of temperature, extremely probable.

Having ozone at my disposal fifteen to twenty times stronger than has hitherto been obtained, I have been enabled to review many of the most important properties of this substance, and besides to determine the part it plays in nature.

With the ozonizing tube the following lecture experiments may be performed. The gas can be collected over water, in flasks of the capacity of half a litre (water dissolves about the 100,000th part of its weight of ozone):

Silver.—A bright leaf of silver is immediately blackened in most ozone (Schönbein). The oxide of silver formed is alkaline, and produces a strong blue with reddened litmus paper (A. H.) In spite of this absorption of ozone by the silver, the volume of the gas undergoes no visible diminution (A. H.)

Iodide of Potassium.—A solution of iodide of potassium poured

*I have arranged an apparatus by which I have produced as much as 188 milligrammes of ozone per litre of oxygen. The research is still going on. A special disposition has also enabled me to collect at the same time, but separately, the ozone produced by the exterior electrode; but, if the ozone generated by the negative electrode is afterwards made to pass over the positive electrode, there is a partial destruction of ozone, and the total quantity collected is less than that which a single pole affords.

into ozone, is decomposed and becomes of a reddish-brown color, through the liberation of iodine (Schönbein). Free potassa is also formed (A. H.) The reaction is rendered more striking if, for a simple solution of iodide of potassium, we substitute a colorless mixture composed of 4 to 6 cubic centimetres of a neutral solution of iodide (6 to 100), and two c.c. of the dilute sulphuric acid containing 0·122 grammes $SO_3.HO$. The liquid colors slightly and nearly the whole of the iodine is precipitated.

Hydrochloric Acid.—5 c.c. of pure colorless solution of hydrochloric acid in water, holding in suspension finely divided gold leaf, when agitated for two minutes with concentrated ozone, becomes of a yellow color, the metal is entirely dissolved, and at the same time a manifest odor of chlorine is produced (A. H.)

Ammonia.—A few cubic centimetres of the volatile alkali, turned into a half-litre flask of ozone, emitted white vapors consisting of nitrate and nitrite of ammonia (A. H.) A transparent mixture of ozone and dry gaseous ammonia nitrifies when water is introduced (A. H.)

Sulphuretted Hydrogen.—A strong reaction, sulphur deposited, and white vapors produced.

Phosphuretted Hydrogen.—(PH_3 of M. Thénard.) This gas, which is unaffected by ordinary oxygen, burns with a vivid light in contact with ozone. The experiment may be made without danger, if only one c.c. of gas is used over water in a tube several decimetres long. As each bubble of ozone is introduced a brilliant flash of light appears (A. H.)

A mixture, composed of 2 volumes of phosphuretted hydrogen (not spontaneously inflammable), and 1 volume of oxygen, blown into a soap-bubble, detonates with violence on contact with a globule of ozone). The ozone acts as though it were charged with electricity.

Organic Matters.—Ozone rapidly corrodes caoutchouc, whether vulcanized or not (Fremy and Becquerel). A current of ozone made to pass through a tube filled with fragments of caoutchouc, becomes charged with carbonic acid, and produces a precipitate with baryta water (A. H.) The alteration of caoutchouc by ozone is, therefore, the result of a combustion. Solution of aniline-red is instantly bleached by ozone; a weak solution of indigo is likewise decolorized. —*Amer. Chem., June*, 1872, from *Mech. Mag.*

BULLOCK'S BLOOD—A NEW REMEDY.

In the practice of medicine, as in other worldly matters, certain things are in fashion for a certain time. Bleeding and mercury have had their day; cod-liver oil and chloral hydrate are already on the wane; alcohol and bullock's blood are now in vogue among the Parisians,—the former for fevers and all inflammatory affections, and the latter for anæmia and pulmonary phthisis. It is a curious sight to see the number of patients of both sexes and of all ranks and ages who flock to the slaughter-house every morning to drink of the still fuming blood of the oxen slaughtered for the table. I was struck at the facility with which young ladies take to it, and I have heard many say that they prefer it to cod-liver oil. I shall not enter into any theoretical speculations as to its *modus operandi*, but what I can vouch for is, I know of several cases of anæmia that have been cured and some of phthisis pulmonalis greatly benefitted by the treatment, at least, as much as they would be under cod-liver oil. For the more fastidious, however, a pharmacien has prepared an extract of blood, which is administered in the form of pills, each of which, weighing about three grains, is said to be equivalent to about half an ounce of pure blood.

M. Boussingault, a distinguished chemist, lately read a paper before the Academy of Sciences, giving an account of his researches on the composition of the blood, and expressed his surprise that, containing as it does all the constituents of a perfect aliment, it is not more generally employed as food. This is a subject worthy the consideration of philanthropists, especially in these days, when the price of meat is everywhere steadily increasing,—at least, among the meat-eating population; and it strikes me that the rivers of blood that are daily spilt on the ground in slaughter-houses might be utilized as food. In Europe, pig's blood is the most generally consumed in the form of sausages; but that of all animals, without distinction, might in this way be more usefully employed. It is well known that in the steppes of South America the natives have for a long time used as food the blood of the animals they chased, which they previously coagulate and season with different condiments.

According to M. Boussingault, of all nutritive substances the blood of animals contains the greatest quantity of iron; and although varying in different animals, it is in physiological conditions found in certain fixed proportions in the blood. In man, to 100 grammes of

blood, M. Bousingault found 51 milligrammes of iron; in that of the ox, 55 milligrammes; of the pig, 59 milligrammes; and in that of the frog, 42 milligrammes. But it was not only in red blood that iron was found; the worthy *savant* detected it even in colorless blood; and after some experiments he found that the blood of snails contained as much iron as that of the ox or calf, and this he thought was sufficient to demonstrate that the red color of the blood is not due, as is generally supposed, to the presence of iron in that liquid.—*Pharm. Jour. and Trans., July* 27, 1872, *from Correspondent of Med. Times and Gazette.*

NOTE ON PILL EXCIPIENTS.

By Walter Tearle.

At the last November meeting, Mr. J. B. Barnes read a paper on a new pill excipient—boro-potassium-tartrate, or soluble tartar. When carefully evaporated to a mucilaginous consistence, a solution of this salt possesses that weight and plasticity which are necessary to form certain untractable bodies into pills. Yet it presents an objectionable feature, for pills made up with it soon acquire that flinty hardness, which, in a medical sense, at least, is prejudicial.

While looking for some such thick heavy substance as this, but which would not so readily solidify and get hard, I was led to try a neutral solution of citrate of potassium in syrup and glycerin; this solution was very heavy and of the consistence of treacle, and possessed sufficient adhesiveness to form nitre and chlorate of potassium into pills without the aid of tragacanth; but from the deliquescent nature of this excipient, the pills could not be kept for any time without getting moist. A solution of soluble cream of tartar was next prepared and evaporated to a thick consistence, and then rediluted with syrup and a small proportion of glycerin till sp. gr. was about 1·420. One ounce of this was then mixed with half an ounce of the above citrate of potassium solution, and dilution with syrup continued till the sp. gr. of the mixture was 1·400, and a liquid of the consistence of mucilage was obtained. This liquid possessed sufficient adhesiveness to form sulphur, antimonial powder, bismuth, gallic acid, benzoic acid, rhubarb, Dover's powder, etc., into pills without the aid of tragacanth, the pills being very small compared with the amount of drug present:—thus 7 grains of sulphur, 6 grains of rhubarb, 5 grains of gallic acid, 5 grains of benzoic acid, and 8 grains saccharated car-

bonate of iron were all formed into pills no larger than the ordinary 5-grain size. These all present a handsome appearance, keep well in boxes in contact with lycopodium, and without being hard retain their shape admirably.

For forming chloral, nitre, and other soluble salts into pills, this solution will not take the place of simple soluble tartar, but for substances not readily soluble, and of which it is required to get as much as possible in an ordinary sized pill, it possesses some advantages over the tartar, one very important one being its ready solubility in cold water.

There is no advantage in having the excipient thicker than mucilage, as the drops would not flow freely from the bottle, and would be inconveniently large for most purposes; in fact the value of these solutions, as pill excipients, obviously depends upon their being equal in thickness with those in common use, such as glycerin, syrup and mucilage.—*Pharm. Journ. and Trans.*, *July* 27, 1872.

OUR WRITING FLUIDS.

By Archibald Paterson.

The author read a very interesting paper on this subject before the Glasgow Chemists' and Druggists' Association, on February 21st. After referring to the nature of the inks used by the ancients, and to the composition of modern writing inks, the author continues:

The proportions which appear most suitable, and upon which most dependence can be placed, are—bruised galls, one pound; to this add one gallon of boiling water, and one-third of the weight of the galls, viz., five ounces and a third of sulphate of iron, in solution; also three ounces of gum arabic previously dissolved, and a few bruised cloves, or a few drops of creosote or carbolic acid dissolved in methylated spirit. It is better to allow the galls to macerate for twenty-four hours, then to strain the infusion, and add the other ingredients.

I cannot do better at this part of the subject than offer you a formula used and recommended by that eminent chemist, the late Dr. Penny, of Anderson's University in this city.

Take of bruised galls twelve ounces, macerate for a week in one gallon of cold water, then add six ounces of sulphate of iron in solution, also six ounces of mucilage of gum arabic, and five or six drops of creosote.

The learned doctor has here taken advantage of a fact well known to chemists—viz., that tannic acid is more soluble in cold than in hot water—hence the cold maceration is prescribed, which I believe is pretty generally employed by first-class ink manufacturers.

The celebrated blue-black ink, prepared by Messrs. Duncan, Flockhart & Co., of Edinburgh, is said to be prepared by the process of cold maceration. A formula, said to be that of Messrs. Duncan, Flockhart & Co., was printed and circulated some years ago by an Edinburgh gentleman, of which the following is a copy, and which explains the process more fully :—

RECEIPT FOR PREPARING BLUE-BLACK WRITING INK
(*Which also serves well for copying ink*).

Blue Aleppo galls (free from insect perforation)	4½	ounces.
Bruised cloves, ...	1	drachm.
Cold water, ...	40	ounces.
Purified sulphate of iron, ...	1½	"
Purified sulphuric acid (by measure) . .	35	minims.
Sulphate of indigo (in the form of a thinnish paste, and which should be *neutral* or nearly so)	0½	ounce.

Place the galls, when bruised, with the cloves, in a fifty-ounce bottle, pour upon them the water, and digest, often daily shaking for a fortnight. Then filter through paper in another fifty-ounce bottle. Get out, also, the refuse of the galls, and wring out of it the remaining liquor through a strong clean linen or cotton cloth into the filter, in order that as little as possible be lost. Next put in the iron, dissolve completely, and filter through paper. Then the acid, and agitate briskly. Lastly the indigo, and thoroughly mix by shaking. Pass the whole through paper. Just filter out of one bottle into the other till the operation has been completed.

On a large scale, this fine ink may be made by percolation, as Duncan, Flockhart and Company, and others in Edinburgh, do it, the above being said to be their recipe.

The weights used are avoirdupois, and the measures used are apothecaries' measures.

Note.—No gum or sugar is proper, and on no account must the acid be omitted. When intended for copying, 5½ ounces galls are the quantity.

You will observe that there are several peculiarities about this writ-

ing-fluid, viz.: First, the cold process is used. Second, the want of gum. Third, the use of sulphate of indigo, which is a solvent for the black precipitate, the tanno-gallate of iron; hence the gum arabic is not required, as it is only used to suspend this precipitate. Fourth, the deficiency of iron, which may be accounted for by the *pure* proto-sulphate being used, which cannot contain, or should not contain any oxide, so that all the iron is free to combine with the tannin. Fifth, the use of free sulphuric acid, which is generally looked upon as detrimental to writing-fluids, but which must be introduced here for some purpose, of which I am as yet ignorant.

Thus far I have only spoken of high-class inks, but it frequently occurs that an article is required which is to be sold at a cheaper rate than that wholly made from galls; and the vegetable world gives us an ample range of materials to select from, many of which contain tannin in fair quantity.

In this case other ingredients may be substituted instead of part of the galls; thus we often see logwood substituted, and catechu, sumach, and oak bark may be used for the same purpose. Many other substances, such as elm-wood, elder, chestnut, beech, willow, plum, cherry and poplar, all contain a certain amount of astringent properties, but none of them are to be compared to galls, and are not likely to supersede them in the manufacture of ink, so long as galls can be had for anything like a fair price. The chemist cannot decide in fixing the proportions required for making ink as he would do almost any other chemical problem, as the substances used are not all of the same relative value, nor, indeed, may two samples of the same substance be equally rich in the material required, viz., tannin; so that he must make an analysis every time he prepares his ink, to estimate the value of his tannin producer, or, what is more convenient, he must fix on certain proportions which are known to produce (by experiment) good results, and do his best in selecting his materials up to a fair average standard.

Thus we see that, although galls are used at present as the most suitable substance for making ink, still any failure or stoppage of supply in the production of galls can never now leave us entirely dependent on that source for the preparation of our "writing-fluids."

It would be impossible, and, if possible, would be uninstructive, to mention all the substances which have found their way into formulæ for inks, many of which are not only foolish, but incompatible, showing a want of chemical knowledge.

Let us now glance at the properties of the various ingredients used in the process. If we use an excess of galls we simply throw away money, and render the ink more liable to mould. If we use an excess of iron, the galls being insufficient to decompose it, the characteristic color of its oxide is soon shown by the writing becoming brown. The use of an excess of gum causes the ink to clog the pens, and the writing to be wanting in fluency. About twenty-five years ago an ink named *Japan ink* was very much in use; it produced a beautiful glossy appearance when written, but clogged the pen so much that it soon fell into disuse; its defect was too much gum. The water should be as soft as possible—that is, it should contain no lime, or other earthy matter; hence rain water, or, better, distilled water, is frequently prescribed in receipts for making ink. The cheapest ink which has hitherto been introduced, is one composed of a saturated solution of logwood, obtained by boiling twenty-two pounds of logwood in a sufficiency of water to produce, after being strained, fourteen gallons of liquor; to this decoction one pound (avoirdupois) of yellow chromate of potash (not bichromate) is added in solution; the proportions are one thousand parts of solution to one of chromate; the change of color is not an immediate one, but gradually becomes darker. The experiment may be tried, on the small scale, by using logwood a quarter of a pound boiled in water to produce two pints, to which, when strained, add twenty grains of chromate of potash in solution.

We will now glance at the composition of "writing-fluids" used for special purposes; thus we know that writing which is intended to be copied is written with ink containing either gum, sugar, treacle, glycerin, or some such substance, which causes the writing to retain moisture, so that a copy of it may be produced even after the original writing has become dry, by being simply damped and pressed.

The following formula requires no press, but may be copied by placing a damp sheet of copying-paper on the writing intended to be copied; above this sheet of copying-paper a sheet of ordinary writing paper must be placed, and then pressed with a paper-knife.

COPYING-INK.

Mix—Thirty grains of extract of logwood,
Seven grains crystal soda,
Half an ounce of water.

Boil till dissolved; then, while stirring well, add thirty grains of

glycerin, one grain of chromate of potash, previously dissolved, and four grains of powdered gum arabic.

INDESTRUCTIBLE INK FOR DEEDS, &C.

Dissolve twenty-five grains of powdered gum copal in two hundred grains of lavender oil by the aid of a gentle heat; then add two and a half grains of lamp-black, and half a grain of powdered indigo.

Another for the same purpose:

In eighteen fluidounces of water boil shellac, two ounces, and borax, one ounce; when cold filter and mix with one ounce of gum arabic dissolved in two ounces of water, to which add powdered indigo and lamp-black as much as may be required.

RED INK

Is commonly prepared by boiling brazil wood, two ounces, in thirty-two ounces of water, to which add, after the decoction has been strained, half an ounce of chloride of tin, and one drachm of powdered gum arabic; then evaporate to sixteen fluidounces.

Or,

Dissolve carmine, one drachm, in half a drachm of liq. ammon. fort. (sp. gr. 880), then dissolve twenty grains of powdered gum arabic in three ounces of water, which add to the dissolved carmine.

BLUE INK

May be prepared by dissolving two or three ounces of sulphate of indigo in a gallon of water; or by rubbing together one ounce of oxalic acid, and two ounces of fine Prussian blue, to which add one quart of boiling water.

INK POWDER

May be prepared by mixing—

Powdered galls, four ounces,
Powdered sulphate of iron, one ounce,
Powdered gum arabic, one ounce,
Powdered white sugar, half an ounce,
Powdered cloves, one drachm.

To these proportions add of water one quart, and macerate for an hour or two.

Note: the quantity of sulphate of iron is small because it has been dried, and has thus lost the weight of water evaporated.

INK IN CAKES

May be prepared by evaporating good ink to dryness in shallow dishes, but the best results are obtained by dissolving Chinese ink in water.

MARKING-INK.

This substance is so well known, that little may be said on the subject. The process is founded on the chemical fact, that by applying heat to a salt of silver in combination with other ingredients, the writing becomes immediately, and should remain permanently, black; the formula of Professor Redwood is a good one:

Dissolve separately—nitrate of silver one ounce, crystal carbonate of soda one and a half ounce; mix the solutions, and collect the precipitate on a filter; wash well, then introduce the moist precipitate into a mortar, and add eight scruples of tartaric acid; triturate till effervescence ceases; then add of liq. ammoniæ fort. a sufficient quantity to dissolve the tartrate of silver, to which add four fluid-drachms of archil, four drachms of powdered white sugar, and twelve drachms of powdered gum arabic, and make up to six fluidounces, if required, with distilled water.

CRIMSON MARKING-INK

Is prepared by adding six grains of carmine to the liquor ammoniæ of the above formula, but it soon loses its crimson color, and becomes, like other marking-inks, a black color.

In conclusion, I cannot lay aside this subject without referring to the beauty, brilliancy and variety of color produced from aniline, whereby we can procure any shade from the most brilliant scarlet to the most sombre black, and should we at any time be deprived of ink from the present sources, we may rest content that so long as our coal fields yield their sparkling riches, so long may we, without fear, look forward to an unlimited supply of "Our Writing Fluids."—*Chemist and Druggist, Lond.*, *June* 15, 1872.

ACTION OF PHOSPHORIC ACID ON MORPHIA.

In a paper read before the Chemical Society, June 6th, the author observes that the action of phosphoric acid upon morphia is somewhat similar to that on codeina, the polymerides being, however, at the same time, converted into "apo" derivatives by the removal of water. The mixed apo bases are immediately precipitated by sodium

carbonate from the acid solution, and can in this way be separated from the unaltered morphia. This precipitate contains a small quantity of a base soluble in ether, which appears to be apomorphia, whose formula, according to the author's researches, should be $C_{68}H_{68}$-N_4O_8. The portion of the precipitate insoluble in ether, when dissolved in hydrochloric acid, and fractionally precipitated, yields diatetramorphia $C_{136}H_{148}N_8O_{22}$, which oxidizes with great readiness. On dissolving this in strong hydrochloric acid, and evaporating, a tarry residue is obtained soluble in water. Strong hydrochloric acid precipitates from this solution the hydrochloride of a new base, $C_{136}H_{146}$-$Cl_2N_8O_{20}\cdot 8HCl$, which differs from chloro-tetramorphia by $-H_4O_4$. Diapo-tetramorphia, when treated with hydriodic acid and phosphorus, yields the corresponding iodine compound $C_{136}H_{146}I_2N_8O_{20}\cdot 8HI$. From these results it would appear that the action of phosphoric acid on morphia is analogous to that on codeina, with the difference that the elements of water are abstracted from the products in the first case, but not in the latter. With respect to the physiological action of diapo-tetramorphia, it is quite as energetic an emetic as apomorphia.—*Chem. News, June* 14, 1872.

Varieties.

Native Vegetable Iuk—Rev. F. Moigno.—The author states that experiments are being made to acclimatise in Europe the *Coriària thymifolia*, or ink-plant of New Grenada. The juice of this plant, locally termed *chanchi*, is at first of a somewhat reddish color, but becomes intensely black in a few hours. This juice can be used for writing without requiring any further preparations; it corrodes steel pens less than ordinary ink, and has, moreover, the advantage of better resisting chemical agents. When the portion of America named above was under Spanish dominion, all public documents were written with chanchi, which was not removed from the paper by sea-water.—*Chem. News, July* 12, *from Les Mondes, July* 4.

Bromine Water as a Test for Phenol—C. Méne.—When bromine water is added in excess to a weak aqueous solution of phenol, there is formed a yellowish white precipitate of tribromo-phenol; this reaction is so sensitive that 1 part of phenol (carbolic acid) in 4370 parts of water, that is 0·0229 grms. to the litre, can be detected; in case of any doubt arising as to the nature of the precipitate, it is separated by filtration, washed, and put into a test-tube, gently heated along with some sodium amalgam; the liquid is then poured into a beaker-glass, and upon the addition of a few drops of dilute sulphuric acid the

characteristic smell of phenol will be perceived, and the substance becomes visible in the shape of oily drops.—*Ibid., from Rev. hebdom. de Chim.*

Glycerin as a Solvent for Aniline Colors.—The fact that glycerin dissolves aniline colors, if anything, more readily than alcohol, suggests the idea of employing it in dyeing. Experiments affording the best results have been made on wool, silk and cotton goods; the colors were found to adhere with unusual persistence to the fibre of the goods, and the only question appears to be the cost. The loss of glycerin is considerable in rinsing the cloth, but in the bath itself the same material can be frequently used without detriment. It was found that the brilliancy of color was decidedly improved by the addition of glycerin, especially with the iodine colors when a hotter bath was desirable. The action of the mordants is not injured, but rather strengthened, by the addition of a little glycerin. While alcohol is considerably evaporated by the heat, the glycerin is unaffected, and the coloring matter is not precipitated. It may not be feasible to substitute glycerin for alcohol in all cases, but in a majority of instances it can be advantageously employed, in whole or in part, on account of the better results obtained, and notwithstanding the additional cost.—*Journ. Applied Chemistry, August*, 1872.

Tanning with Glycerin.—The property of glycerin to preserve leather has been known for a long time; it is now proposed to employ it in tanning; to increase the elasticity and resistance of the leather. This system of tanning is particularly adapted to straps and belts of machinery, as it keeps them from drying and cracking. It is only necessary to immerse the leather, tanned in the usual manner, in a bath of glycerin, and to leave it for several weeks, when the pores will be impregnated with the greasy substance, and the leather will be found to be much more elastic and tenacious.—*Ibid.*

Cure of Hydrophobia.—Mr. R. C. Shoemaker writes in the *Country Gentleman*, published in Montgomery Co., Pa., as follows: The time between the biting of an animal by a mad dog and showing signs of hydrophobia is not less than nine days, but may be nine months. After the animal has become rabid, a bite or scratch with his teeth upon a person, or slobber coming in contact with a sore or a raw place, would produce hydrophobia just as soon as though he had been bitten by a mad-dog. Hydrophobia can be prevented, and I will give what is well known to be an infallible remedy, if properly administered, for man or beast. A dose for a man or cow should be about four times as great as for a person. It is not too late to give medicine any time before the spasms come on.

The first dose for a person is one and a half ounces elecampane root, bruised, put in a pint of new milk, reduced to one-half by boiling, then taken all at one dose in the morning, fasting until after noon, or at least a very light diet after several hours have elapsed. The second dose the same as first, except take two ounces of the root; third dose the same as last, to be taken every other day. Three doses are all that is needed, and there need be no fear. This I know from my own experience, and know of a number of other cases where it

has been entirely successful. This is no guess-work. Those persons I allude to were bitten by their own dogs, that had been bitten by rabid dogs, and were penned up to see if they would go mad; they did go mad, and did bite the persons. This remedy has been used in and about Philadelphia for forty years and longer with great success, and is known as the Goodman remedy. I am acquainted with a physician who told me he knew of its use for more than thirty years, but never knew a case that failed where it was properly administered. Among other cases he mentioned was one where a number of cows had been bitten by a mad dog. To half of the number they administered this remedy, to the other half not. The latter all died with hydrophobia, while those who took the elecampane and milk showed no signs of that disease.

Use of the Essence of Eucalyptus Globulus to disguise the Odor and Taste of Cod-liver Oil.—The researches of Prof. Gubler on the *Eucalyptus Globulus* and its essence—Eucalyptol—has suggested to M. H. Duquesnel a trial of the effect of the Eucalyptol in masking the disagreeable flavor and odor of cod-liver oil, and the result, he says, has been most satisfactory. He mixes one hundred parts of cod-liver oil with one part of the essence of eucalyptus. The oil thus aromatized, he states, has neither the taste nor odor of cod-liver oil; it is readily swallowed and leaves in the mouth or on the tongue only the flavor of the essence with which it is mixed: and the disagreeable eructations which follow the taking of the pure oil are completely modified. The aromatic oil may be kept for a long time if the bottle in which it is placed be maintained very closely stoppered.—*Med. News and Library, August,* 1872, *from Rev. de Thérap., June* 15, 1872, *from Bull. de Thérap.*

Oxidation of Sulphur by Ozone.—Prof. A. W. Wright* has made the observation, in using the Holtz Electrical Machine, that the ebonite insulators generally employed in this form of machine, frequently become covered in warm weather with a moisture possessing an acid taste and reaction, and which proved upon examination to contain sulphuric acid. The difficulty of using the machine at times must now be ascribed partly to the presence of this substance, which exalts very considerably the electrical conductivity of the hygroscopic moisture always present on the insulators. Further examination proved that the acid originated from the action of the ozone on the ebonite insulators, slowly attacking them and oxidizing the liberated sulphur. Experiments made with a view to determine whether sulphur could be directly oxidized by ozone were unsuccessful.—*Journ. Frank. Inst., Aug.,* 1872.

The Use of Sulphuretted Hydrogen as a Blow-pipe Reagent.—Mr. J. Landauer has communicated to the Chemical Society of Berlin the fact that it is perfectly feasible to obtain all the characteristic sulphide precipitations usually obtained in the wet way, by simply mixing the metallic compound to be tested with powdered hyposulphite of soda, and bringing the same upon a borax bead

* Am. Jour. of Science, iv, 29.

into the reducing portion of a blow-pipe flame. In order to avoid the difficulty resulting from the ready volatility of certain compounds, like those of mercury and arsenic, and the ambiguous colors of others, the author recommends the mixture to be placed in a small glass tube, and to be heated therein. After the reaction, which can readily be followed by the smell of the sulphuretted hydrogen evolved, the fused mass will possess the sulphide colorations most clearly. It is also recommended that the hyposulphite be made anhydrous before use.—*Ibid.*

The Use of Bromine in Analytical Chemistry.—In a former number of the "Journal," we took occasion to notice the recommendation of Mr. Kămmerer, who placed a very high value upon bromine as a substitute for chlorine in analysis. Since that time, to judge from several publications upon the subject, it appears to be steadily growing in favor with chemists. Mr. P. Waage* is the last of the writers on the subject, and, as the result of his experiments, declares bromine (in aqueous or hydrochloric acid solution) to be in every respect more suitable as an oxidizing agent than either nitric acid, chlorate of potassa and hydrochloric acid, or chlorine. Each of the last-named reagents, while possessing certain advantages, have certain drawbacks which place a limit to their usefulness. Nitric acid, the usual oxidizing agent, will only be of service when concentrated, and when in this state cannot be used in platinum vessels on account of the small quantities of chlorine which it generally contains, and must be kept from contact with organic matter like filter paper, if subsequent precipitations are to be made. Chlorate of potassa will only act when in presence of somewhat concentrated hydrochloric acid and a difficulty is always experienced in drawing out the last portions of chlorine, which necessitates at times repeated addition of hydrochloric acid. The use of chlorine is attended with the objection of the arrangement of an apparatus for every oxidation, and the fact that only a small quantity of the gas can be dissolved in water, rendering the employment of much liquid necessary. Bromine, however, seems to be free from these drawbacks, and hence to be deserving of a place as a standard oxidizing reagent in the analytical laboratory. The author recommends its employment, either pure or as bromine water (which can be obtained with two to three per cent. of bromine), or in hydrochloric acid solution, containing about 15 per cent. of bromine. The color of the element is a good indicator by which excess may be avoided and its low boiling point permits it to be driven off with little difficulty. Bromine water is without action on platinum (except in presence of nitric acid), and is without action on filter paper. As an agent for the oxidation of sulphur, sulphydric acid and metallic sulphides, as in the solution of iron or copper pyrites, mispickel, and precipitated sulphides, the opinions of those who have worked with it, express nothing but the most complete satisfaction.—*Ibid.*

*Chem. News, xxv, 282.

Pharmaceutical Colleges and Associations.

The New Jersey Pharmaceutical Association held its semi-annual meeting at the United States Hotel, at Long Branch, August 14th, at 12 o'clock noon. The President, Dr. E. P. Nichols, occupied the chair; Mr. G. H. White, Secretary. After the call of the roll and the reading of the minutes of the annual meeting, Mr. Jas. R. Mercein presented the report of the Committee on Queries, seven of which were subsequently accepted by members to be reported on in February next. Mr. Wm. Rust, on the part of an Investigation Committee appointed at the annual meeting to investigate the charges preferred against two members, reported that the charges against one were not sustained, and that W. H. Pancoast, who had been accused of immoral and unprofessional conduct, had failed to answer the summons of the Committee; after some discussion his name was ordered to be dropped from the roll.

Mr. G. H. White, from the Committee on Ethics, reported a code of ethics which is substantially the same as that adopted by the New York College of Pharmacy,* and was afterwards unanimously adopted. One thousand copies were ordered to be printed for distribution.

Dr. Nichols and Mr. R. Rickey reported verbally on the defeat of the Pharmacy bill during the last session of the New Jersey Legislature.

After deciding by vote that this is a local organization, and its members should be residents or doing business in the State of New Jersey, Messrs. Theobald and Max Frohwein were elected honorary members.

The afternoon session was mainly occupied by discussing several provisions of the law, introduced or amended by the Legislature. The failure of the efforts made during the last three years, to secure efficient legislation, appeared to have had a disheartening effect upon some members, but attention was drawn to the time required in several other States, and particularly in Great Britain, where the pharmacists labored about thirteen years to secure the first pharmaceutical law. The Association then directed the appointment of a Committee of three to prosecute the subject before the next Legislature to the best of their ability, and appropriated $100 to defray the necessary expenses. Messrs. C. H. Dalrymple, R. W. Gardener and R. Rickey were appointed this Committee.

The following delegates to the next meeting of the American Pharmaceutical Association were appointed: R. W. Gardener, G. E. Carmen, C. C. Wells, Omar Barton and C. W. Badger.

After the election of members and the payment of bills, the Association adjourned, to convene again at the annual meeting to be held at Trenton in February next.

*See American Journal of Pharmacy, 1871, p. 519.

The Maryland College of Pharmacy held a regular meeting July 11th, the President, Prof. J. Faris Moore, in the chair. Mr. E. Scheffer, of Louisville, Ky., presented, through Dr. J. Brown Baxley, samples of pepsin and his preparations of pepsin, which, on motion, were accepted, and the thanks of the College voted for the handsome donation.

The Treasurer presented his semi annual Report, which was read and referred to an Auditing Committee. The semi annual election of officers resulted in the re-election of the present incumbents, viz.:—President, Prof. J. Faris Moore; Treasurer, Dr. J. Brown Baxley; Secretary, Dr. Edwin Eareckson; one of the Board of Examiners, Mr. Louis Dohme.

The following gentlemen were elected delegates to the next annual meeting of the American Pharmaceutical Association: Messrs. A. P. Sharp, Joseph Roberts, Louis Dohme, J. Faris Moore and J. F. Hancock.

Prof. J. Faris Moore, Claude Baxley and M. J. De Rosset were elected Delegates to the Conference of Teaching Colleges of Pharmacy. The questions submitted by the Committee of the Conference to the Colleges of Pharmacy, which are to be brought up at the Conference, were taken up in regular order, discussed and voted upon, and the Delegation instructed accordingly.

After listening to an essay by Mr. John F. Hancock, and receiving it with a vote of thanks, the College adjourned to the second Thursday of September.

We give below an abstract of Mr. Hancock's able Essay on "Pharmacy and Toxicology," in which he portrayed the phases of pharmaceutical fashions, past and present, indicating the excesses to which trades and professions naturally tend. Notwithstanding the fact that Pharmacy had made rapid strides within the past few years, and had grown to be far more scientific in the United States, the retrograde movement was also perceptible and manifest in what are known as *trade specialties*. The manufacturing pharmacist was represented as sending out his salesman with price lists in one hand and sample bottles in the other, —one for the pharmacist and the other for the physician—and in too many cases both are easily duped by soothsayings and palate tickling, while the patrons of these two representatives of medical science pay the penalty. This is not the only evil issuing from this modern fashion in Pharmacy; another, almost as great, is that young men are taken into these huxtering establishments under the pretence of learning Pharmacy, while there is almost a total absence of means to teach it. The laws of Germany, which compel the tutor to instruct his pupil, would be profitable to the rising generation of pharmacists in the United States, if speedily applied. Pharmacy should be a profession equal in moral and intellectual standing to any of the branches of the physical sciences, and in point of education the pharmacist should be the equal of the preacher, the lawyer and the physician.

If a high degree of professional attainment was demanded of the pharmacist, and that coupled with habits of industry, integrity and care, he would then be able to faithfully serve the office to which the agony of sufferers has called him.

The offices of the physician and pharmacist were represented as being peculiarly responsible, from the fact that they are the custodians of the lives and well-being of their patrons, and when the question of responsibility is seriously considered, it seems too great for mortal man to bear. A casual glance at the duties of the two professions renders it evident that the responsibility of the pharmacist is greater than that of the physician, from the fact that the physician is only responsible for his own acts, while the proprietor of a pharmacy is morally responsible for all of those in his employ.

As a principle, it was contended that what is now known as Pharmacy should be divided into two branches, to be known as Professional Pharmacy and trade, or Empirical Pharmacy. The professional pharmacist should possess a scientific and practical knowledge of chemical and pharmaceutical manipulations, and be practically engaged in the selection and preservation of medicinal substances, as also in the making of officinal preparations and the dispensing of physicians' prescriptions and family medicines. The compounding of prescriptions should be regarded as professional services, and charged for accordingly.

Trade Pharmacy should constitute the manufacture and sale of nostrums and proprietary remedies (and into this branch it would be well to throw the bulk of popular elixirs), and should be regulated as a trade or commercial branch of business, and distinctive titles should be given to these respectively. All ages had a Pharmacy peculiar in some respects, and to illustrate an apprehension for the near future, an ideal Pharmacy was pictured.

The subject of Toxicology, as applied to Pharmacy, was next referred to, and was represented as being of unusual interest at the present time, from the fact that the most potent poisons are used with the most popular remedial agents, and that the list of such poisons had been greatly augmented. If the trouble of a life-time in the storage and dispensing of poisons would be the means of saving one confiding customer from an untimely grave, it would be a great accomplishment.

A strict attention to the discussions which are being conducted upon this question, and a careful inquiry into the laws which have been enacted bearing upon the subject, were recommended. Reference was made to the resolutions which have been recently adopted by the College of Physicians of Philadelphia, and the American Medical Association, as also to the Committee appointed by the Philadelphia College of Pharmacy,* to take into consideration said resolutions, and he suggested that the Maryland College of Pharmacy appoint a similar Committee, with instructions to report a set of rules and regulations for general adoption. Until something definite is done in this matter by the College, the following simple and inexpensive rules were recommended for individual adoption, which would at the same time serve as a means of directing the mind to a more serious consideration of the subject.

Rule 1. Provide a cup-board or draw, not too easy of access, and in it keep all poisonous chemicals and powders for use in prescriptions and general dispensing, and keep it under lock and key. 2d. Keep all poisonous tinctures and other poisonous liquids that are used for dispensing purposes in a locked cupboard, or upon a high shelf, which will occasion the use of a step or ladder to reach them. 3d. If bottles or other poison packages are kept in reserve from which the dispensing vessels are refilled, keep these under lock, or in some other secure place where they are not likely to be taken in mistake; in all cases have them duly labelled with the proper names of the articles and the word "Poison." If bottles, keep them securely capped, with the word "Poison" written or printed on the cap with conspicuous letters. 4th. Establish as thorough a classification of poisons as possible. 5th. The refilling of poison bottles or other packages containing poisons to be done by, or under the superintendence of, the proprietor or his first assistant. 6th. In all cases, the bottles or other packages containing poisons to be returned to their places immediately after being used. 7th. Always use caution labels when dispensing poisons and remedies for external use.

The Columbia Pharmaceutical Association has appointed the following delegation to the next meeting of the American Pharmaceutical Association: Messrs. G. M. Howard, John T. Eagert, Joseph W. Nairn, W. M. McLeod and D. P. Hickling, Phar. D.

* See American Journal of Pharmacy, 1872, p. 329.

A Pharmaceutical Association in South Carolina is about being organized. and. we have been informed, will probably be represented at the Cleveland meeting of the National Association.

The California Pharmaceutical Society held their regular meeting at their hall, Mo. 332 Bush street, on July 10th, Vice-President Painter in the chair. The report of directors exhibited a large increase of members. A collection of seventeen rare and valuable chemicals was presented by Mr. Henry G. Hanks to the Society, and for which thanks were voted to the donor. The Corresponding Secretary read interesting correspondence from home and abroad and Mr. Steele, on behalf of the Board of Directors, offered the following resolutions:

Whereas. It is incumbent upon the members of the California Pharmaceutical Society to take all needful steps for the advancement of Pharmaceutical science. and the most complete education practicable for those who embrace it as a profession. and such education not being possible without some organized system of teaching; be it therefore

Resolved. That the Board of Directors of the California Pharmaceutical Society be authorized and empowered to act *ex officio*. as a Committee to take all needful steps for the establishment of a College of Pharmacy in the City and County of San Francisco. and. if deemed advisable by them. to add to their number from among the members of the California Pharmaceutical Society.

Be it further resolved That said Committee are empowered to assume the management of the financial and educational business requisite in such establishment. and to act as a Board of Trustees after such establishment, for the management of the affairs of said College of Pharmacy.

Resolved. That said Committee be authorized to issue 100 shares of stock. of $100 per share. and to solicit subscriptions for the same, one twentieth to be due upon delivery of certificate of stock. and the remainder in 19 equal payments. at intervals of thirty days. until the whole amount subscribed for shall have been paid. All moneys accruing from the sale of said stock to constitute the capital of, and to be devoted solely to, the maintenance of said College of Pharmacy.

Resolved. That the Committee shall organize for the transaction of business by the election of a President. Secretary and Treasurer. who shall hold office until their successors are elected and qualified. [Then followed the usual duties of the officers.]

Resolved, That the Committee authorized and empowered to act as above mentioned. are required to report semi annually to the California Pharmaceutical Society. and annually to submit a full and complete report of their proceedings to the same.

These resolutions were, upon motion. adopted; and after a prolonged discussion of various plans towards the successful establishment of lectures at an early day, the Society adjourned. W. T. W.

Pharmaceutical Society of Paris.—At the meeting held June 5th, Mr. Méhu stated that he had published. in 1868. in the Archives de Médicine, that benzoate of iron dissolves in oils; the cinnamate is likewise soluble, but the arseniates of iron are insoluble in oils.

Mr. Ferrand proposes to detect the adulteration of oil of bitter almonds with nitro-benzole by the red color obtained on heating 3 or 4 c.c. of an alcoholic so-

lution, containing 20 per cent. caustic potassa, with 10 drops of the suspected oil.*.

In a note read by M. de Vrij, he stated that bitartrate of soda produces, with sulphate of cinchonidia, at once a precipitate which is insoluble in water; the quinidia salt yields a similar precipitate after several hours.

A report by Messrs. Adrian, Dubail and Boudet, was read on the law recently enacted by the National Assembly, confining the sale of essence of absinth to the pharmacies; the various absinth liquors are made principally by two processes, either by distilling an alcoholic liquor from fresh wormwood, or by dissolving the volatile oil in alcohol.

In the following discussion, it was stated that the consumption of absinth liquor had led to the most deplorable consequences; that the design of the new law was to prevent its manufacture from the essential oil; that, according to observations presented to the therapeutical society, it possesses dangerous properties, differing in its physiological action from alcohol, anise and the other essences used in making absinth liquor; that the essential oil of wormwood had been supplied by the wholesale trade in large quantities for the manufacture of the liquor, and that under the new law pharmacists only have the right to sell, upon a prescription, the oil and the concentrated preparations of wormwood.

Mr. Vuaflart read a note on orange flower water distilled by steam, which, though at first very pleasant, loses its odor soon after being opened. Mr. Machet had previously noticed that rose water distilled by steam does not keep nearly as well as that distilled over the naked fire. Since he follows this plan, the author is enabled to keep orange flower water for years; at first it has a peculiar empyreumatic odor (goût de feu) which, however, it loses after the first frost.

The Arabs, according to Mr. Roucher, use great care in preparing this water, which, after several cohobations over the naked fire, is saturated, strongly aromatic and keeps well.

Editorial Department.

American Pharmaceutical Association.—Mr. H. C. Gaylord, the Local Secretary, informs us that the Central Rink at Cleveland, corner of Euclid Avenue and Monument Square, has been secured for holding the meeting and the exhibition. From our correspondence with members, and a number of pharmacists desirous of connecting themselves with the Association, we are led to expect that the approaching meeting will be largely attended from all sections of the country, and that in scientific interest, and in importance to the pharmaceutical profession in this country, it will most likely be equal to any one that preceded it. The applications for membership which have reached the Permanent Secretary in advance of the meeting, are unusually numerous, so that the Association has a fair prospect of increasing, not only in numbers,

* A brown resin and azoxybenzid are formed, which are insoluble in water, while pure oil of bitter almonds yields soluble benzoate of potassa. This process of detecting the adulteration was described by me in the American Journal of Pharmacy, 1857, p. 544.—Ed. Am. Jour. Pharm.

but likewise in influence and usefulness. We wish to see all those pharmacists connected with this body who love the profession of their choice, and who have the advancement of pharmaceutical knowledge and the elevation of the professional character of the pharmacists and druggists at heart.

The General Index to the American Journal of Pharmacy, which in January, 1871, was announced to be in course of preparation, has at last been finished, and arrangements have been made for its speedy publication. Mr. H. M. Wilder has devoted much time to the compilation of the Index, and has produced a work which for convenience and usefulness will doubtless be a welcome addition to the library of the readers of this Journal, and an indispensable guide and aid to pharmaceutical and chemical students and investigators, showing the extensive literature, and pointing to numerous sources of information at home and abroad.

Extending over a period of forty-two years, the General Index will convey an idea not only of the progress of pharmacy in the United States and in other countries, but likewise of the discoveries and researches made in the allied sciences, and particularly in chemistry in its bearings on pharmacy, materia medica, &c. The work contains over 29,000 notices, conveniently arranged, which figure not merely gives an idea of the diligent labor bestowed upon the work by Mr. Wilder, but enables our readers to judge of its value as a source of reference and information.

The General Index will make an octavo volume of about 350 pages, printed in double columns, and will be issued as soon as the care which is necessary to bestow upon proof-reading, &c., will permit. It is contemplated to publish it bound in cloth, and also in paper covers, so that our subscribers may have it bound to match the binding of their Journal. The price of the volume will be between \$3 and \$4; it will be fixed as low as possible, as the Publication Committee desire that it should be in the hands of every subscriber to and reader of this Journal.

Orders for the "General Index" may now be sent to Mr. H. H. Wolle, the Business Editor, and will be filled, in the order received, immediately after publication.

The Vagaries of Chemical Nomenclature.—Under this title we have received a communication, which we print below. The perplexities which the writer experiences are not unknown to us, nor do we undervalue them. But in this respect we do not fare any better than our forefathers did, who were taught that the earths were elements, that what we now call chlorine was oxidized muriatic acid, &c. So-called modern views are occasionally pretty old theories, which, in consequence of the increased number of researches, may gain prominence to be replaced again by views which for years may battle to gain a foothold. We have no fear that our posterity will be troubled to any greater extent with synonyms and new terms than we are and our predecessors have been; for that which has no solid foundation cannot endure the searching criticism of scientific research; hence theories, nomenclatures and notations

will become obsolete in future as they became in the past. How many of the rising generation remember now what the "salt of opium" was more than sixty years ago? Who would now call carbonate of potassa "salt of wormwood?" And who meets with the numerous species of the genus "magisterium" now-a-days, except in formulas that have been handed down from generation to generation? We are no advocate of useless innovations; but we concede the right of existence to every theory based upon sound reasoning, until the very foundation of it has been proven to be incorrect and untenable.

The following is the communication which has led to these remarks:

If any department of knowledge has been made difficult for the student, within the last twenty-five years, chemistry deserves to take the head and front of the offence. It was once no difficult thing for any intelligent lad of fifteen to comprehend the whole length and breadth of the science, as given to us in such works as Turner's and Kane's Chemistries. Now, not only have changes (some of them necessary, indeed) been made in the nomenclature, but this nomenclature has itself experienced variations that appear entirely needless, and that serve only to perplex the learner. The needless innovations objected to have made chemistry the hardest study the young apothecary has to master, for in these days an apothecary must be a chemist in knowledge, although not one to the fullest extent in practice.

As illustrations of innovations, I cite the use of a new kind of adjectives, that do not in the least degree improve the form. These adjectives are made by changing the termination of a noun into *ic* and *ous*. Formerly it was carbonate of potassa, then it was potassic carbonate; now, it is carbonate of potassium. The oxides of mercury have become mercur*ic* and mercur*ous* oxide. Hydrate of chloral is chloral hydrate. Sulphate of soda became sodic sulphate, then sulphate of sodium.

What is the use?

"Carbonate of potassa" gave the knowledge, and fixed it, that it meant *carbonate of the oxide of potassium.* Now the learner conceives of a direct combination of carbon and potassium, with which oxygen has nothing to do, when he reads carbonate of *potassium.*

Then we have "artiads," "dyads," and numerous other new-fangled terms, *without* which we once "got along" a great deal better than we now do *with* them.

All these things are so much needless new matter to learn, requiring more time and labor to be spent.

Two hundred years hence, if invention goes on as now, no dictionary will hold all the new terms. For mercy's sake to our posterity, we should "hold on."

APOTHECARY.

THE CLAIMS OF SECRET MEDICINES AND SPECIFICS are generally without bounds, aiming to deceive the credulous, whether they be found among the sufferers or among the easy-minded pharmacists or physicians. That such claims and unwarrantable statements need not go on unchecked was proven last spring in the Supreme Court of New York. We clip the following from a newspaper of that city, in illustration of this, and append merely the charitable desire that the manufacturers of all nostrums might fare similarly:

A patent medicine case has just been decided by Judge Brady, in the Supreme Court, the parties being Dr. Byrn and "The American Agriculturist." The latter, it would appear, has been classing the plaintiff with Edward A.

Wilson, whom the newspaper designated as an "unmitigated scoundrel," and added: "One of these chaps professes to publish a monthly paper to disseminate universal intelligence. We have one of these precious sheets, and find it to be of the infant-murder and licentious order. Dr. Byrn makes a very bad book, and vends medicines to match, and is another nuisance."

The defendants say in their answer that the plaintiff advertised a drug as a specific for almost all diseases; that it was calculated to deceive the public; that it did not contain what it purported to contain; that the plaintiff puts up the said patent medicine in packages about 4 inches in length and about 2½ inches in width, upon each of which is engraved the patented likeness of a "Heathen Chinee;" that he sells a patented medicine which he advertises as an antidote for tobacco, and defendant believes that the same is not an antidote for tobacco but a swindle, and calculated to deceive and defraud the public. These and other allegations the plaintiff moved to strike out as irrelevant.

Judge Brady denies the motion, holding that, though the allusion to the heathen Chinee may be immaterial, yet the portion of the charge in regard to the tobacco antidote is entirely relevant; in other words, if it is not an antidote it is calculated to deceive, and is a fraud. The seller of a drug who vends it with an unqualified statement of its efficacy must take the consequences if his representations be untrue. Specifics against "the thousand natural ills that flesh is heir to" are not easily attainable, and the medical profession do not claim to have devised many through all their experience and research. They are, nevertheless, devoutly prayed for, and so potent is the desire for them that reasonable and indeed unreasonable assertions of their discovery are hailed with joy, and the public confidence is readily secured. When a person, therefore, assumes to have divined one, the public has a right to rely on the assurance given, however foolish such a confidence may seem. Drugs should be dispensed with great caution, and the laws which are designed to protect the people from the use of them save under the guidance of the expert chemist, conscientious druggist, or skillful practitioner, cannot be too stringent. I do not design to express any opinion of the character of these preparations. Whether they are good or bad, injurious or harmless, I am not called upon to declare, but of the propriety of holding men to a strict accountability who attempt to practice upon the credulity of the afflicted and subject them to greater suffering I entertain no doubt

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Manual of Qualitative Analysis. By Robert Galloway, F.C.S., Professor of Applied Chemistry in the Royal College of Science for Ireland, &c. From the fifth re-written and enlarged London edition. With illustrations. Philadelphia: Henry C. Lea. 1872. 12mo, 402 pages.

To become a reliable analyst, the student must be a close and accurate observer, and not pass over a given ground without exploring it in every direction. Comparisons will then naturally suggest themselves and invite to researches on reliable modes to distinguish bodies which are closely related to each other in chemical behavior. In fact, chemistry cannot be mastered in any of its branches except by constantly comparing and distinguishing. To lead and educate the student to these accomplishments is the aim of the author, which he has successfully carried out in the work before us.

In the preface, the author criticises rather severely the analytical methods

adopted in the "Giessen Outlines," and by "Fresenius," a censure in which we cannot join, if the teacher keeps constantly in view that the facts in chemistry cannot be mastered merely by committing them to memory.

The work is divided into three parts, Part I containing, after some preliminary remarks, the analysis of inorganic compounds, and Part II the analysis of organic substances, while Part III is devoted to operations and tests. This last part should precede the others, since the operations and the manner in which they must be performed, must necessarily be studied before applying them practically in analysis.

The bases have been arranged into six groups; each group is introduced with some general remarks; then follows a table, in which the behavior of each member of the group to the same reagents is described; this is followed by methods for detecting and separating the several members of the group, and then by a concise description of the metals, oxides and salts. To each group are appended a number of questions, which the student is expected to answer in writing. The separation of the basic groups forms the conclusion of this portion, and is treated in a similar manner by table and practical hints.

The acids are classified in inorganic and organic acids, and enumerated one after the other, together with their behavior to reagents; subsequently they are arranged into groups, the characteristic behavior of each being given, but the convenient tables of the basic groups being omitted. Part I closes with brief descriptions of special methods of examination, and of the systematic course of the analysis of different bodies.

Part II, the analysis of organic substances, occupies less than 180 pages, and includes the analysis of animal secretions, urine and urinary calculi, taken from Gerhardt and Chancel's work. The material belonging to this part is treated in groups, such as albuminoid, gelatigenous, saccharine groups, bases, acids, &c. The properties and tests of the different compounds are given with clearness and accuracy, and are sufficient for identification. The compounds of vegetable origin, exclusive of the vegetable acids in Part I, are treated upon 25 pages; they certainly deserve more space, since many compounds of vegetable origin are not mentioned, which possess considerable importance as medicines; of the alkaloids, for instance, only the following have been described: nicotina, morphia, narcotina, quinia, cinchonia, strychnia and brucia; while the glucosides, resins, &c., have been neglected altogether. The work, therefore, cannot be employed as a guide in the proximate analysis of plants.

We regard this volume as a valuable addition to the chemical text-books, and as particularly calculated to instruct the student in analytical researches of inorganic compounds, the important vegetable acids, and of compounds and various secretions and excretions of animal origin.

The work has been well gotten up by the publisher, the types are clear, the illustrations well executed, and the typical errors few and easily corrected.

Proceedings of the American Academy of Arts and Sciences, Boston. Vol. VIII, p. 297—408.

The monthly meetings, the proceedings of which are recorded in this publi-

cation, extend over a period of 17 months, from September, 1870, to February, 1872. Besides several other papers and memoirs of general interest we find the following, which are more particularly interesting to the readers of this Journal: On the Amount of Carbonic Acid Contained in the Air of Various Places in Boston, by Mr. A. H. Pearson. The experiments were made in the spring of 1870, and showed in the streets a percentage of carbonic acid by volume varying between .02586 and .04999, while in the rooms at the Massachusetts Institute of Technology it varied between .05551 and .13205, and in the school-rooms in that city between .07732 and .19927.—Notes on Labiatæ, by Prof. Asa Gray, contains observations on some new genera, and a number of North American species of this order.—Determination of a Collection of Plants made in Oregon by Elihu Hall during the Summer of 1871, with Characters of some New Species and Various Notes. By Prof. Asa Gray. Among the 631 species enumerated in this paper, we find quite a number belonging to genera of which one or more species are officinal, and probably representing on the Pacific coast the officinal species in medical properties. The following eight plants are the only ones officinal in our Pharmacopœia: *Cornus sericea* (var. *occidentalis*, T. and Gr.); *Achillea millefolium*, L.; *Arctostaphylos uva-ursi*, Spreng. (var.); *Chimaphila umbellata*, Pursh ; *Lycopus virginicus*, L.; *Scutellaria lateriflora*, L.; *Apocynum androsæmifolium*, L.; and *Juniperus communis*, L. (var. *alpina*, Parl.) It would be interesting if the medical and pharmacial professions of the Pacific coast would bestow some attention on the species indigenous there, belonging to the genera *Asarum*, *Asclepias*, *Gentiana*, *Erythræa*, *Artemisia*, *Erigeron*, *Heuchera*, *Rubus* and others. A number of plants enumerated here are also contained in the list of medicinal plants published by Mr. Wm. T. Wenzell in the last volume of the Proceedings of the American Pharmaceutical Association; but on this side of the continent we know very little, if anything, of their medicinal properties.

The Half-Yearly Abstract of the Medical Sciences, being a Digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by William Domett Stone, M.D., F.R.C.S. Vol. LV. July, 1872. Philadelphia: Henry C. Lea. 8vo, pp. 296. Price, $1.50, or $2.50 per annum.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXV. July. New York: W. A. Townsend. 8vo, pp. 281. Price, $1.50, or $2.50 a year.

Half-Yearly Compendium of Medical Science. Part X. July, 1872. Philadelphia: S. W. Butler, M.D. 8vo, pp. 294. Price, $2, or $3 per annum.

The above three semi annual publications contain selections and abridgments of the most important papers, relating to the medical sciences, published during the last six months.

Massachusetts Institute of Technology. Reports of the President, Secretary and Departments, 1871–72. Boston: Press of A. A. Kingman, 1872, 8vo, pp. 103.

The pamphlet conveys an idea of the instruction and the work accomplished

at this Institute. To us, the report on the department of physics, detailing a number of investigations made by the students, has been of particular interest.

Annual Reports of the Board of Visitors, Trustees, Treasurer and Superintendent of the New Hampshire Asylum for the Insane, to the Legislature, June Session, 1872. Manchester: James M. Campbell, State Printer, 1872. 8vo, 54 pages.

This pamphlet contains such information as may be looked for in such documents. The institution appears to be well managed.

Case of excessive hypodermic use of morphia. Three hundred needles removed from the body of an insane woman. Reported by Judson B. Andrews, M.D. 8vo, 8 pages.

This reprint, from the American Journal of Insanity, for July, relates the history of an unfortunate female, who had become addicted to the hypodermic use of morphia, consuming, during the period prior to her admission, on the average three-sixteenths oz. morphia per week.

Ueber einige in Turkestan gebrœuchlichen Heilmittel. Von Dr. Georg Dragendorff, ord. Prof. der Pharmacie an der Universität Dorpat. St. Petersburg: 1872. 8vo, 30 pages.

On some remedies used in Turcestan.

This is a highly interesting memoir, reprinted from the Pharmaceutical Journal of Russia, and we shall take occasion to present to our readers some extracts in our next number.

OBITUARY.

Frederick Augustus Gruner died at Bern, Switzerland, on the evening of May 6th, in his 55th year, having been born November 13th, 1817. The deceased, who had been President of the Swiss Pharmaceutical Society, and editor of the Swiss Pharmaceutical Weekly, was a devoted student of natural history and connected with various scientific bodies. He was highly esteemed by the community in which he lived, and elected to various positions of trust and confidence. He was a corresponding member of Philadelphia College of Pharmacy.

Mr. Gruner devoted much time during the last few years to collections of Botany and Materia Medica, and his portable students' cabinets have been highly spoken of by such authorities as Professors Flückiger, Gastell and Buchner.

Professor Dr. Wilhelm Eisenlohr, who died at Karlsruhe, Germany, in July last, was born January 1st, 1799, and was therefore in his 74th year at the time of his death. The deceased was an excellent mathematician, and well known as a physicist; his researches on light, electricity and kindred subjects, have secured for him a high position among scientific investigators. Amiable in his disposition, earnest in purpose and possessing an extensive knowledge, he labored for many years faithfully and successfully at the Polytechnic Institute of the city where he died.

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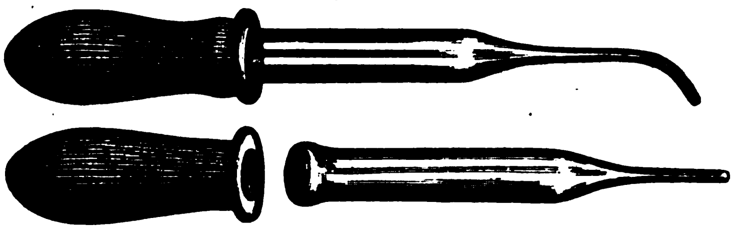

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VOL. XLIV.] **[NO. X.**

AMERICAN JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] OCTOBER, 1872. **[VOL. II, NO. X.**

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance*. Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St, Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

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Notices on second page of Cover 50 cents per line. Special rates for Cover.

NOTICE.

The next Pharmaceutical Meeting will be held at the College Hall, on TUESDAY, the 15th of October, at 3½ o clock, P. M.

Members, students and others interested in Pharmacy are invited to attend, and to bring drugs, preparations and other objects of interest.

CLEMMONS PARRISH, *Registrar.*

NOTICE.

A large number of young men have entered their names on the Register of the College for situations during their attendance upon the lectures. Most of them have had from three to five years' experience in good stores in various parts of the country, and are willing to accept a moderate salary.

WILLIAM C. BAKER, *Registrar*,
1100 Arch St.

WANTED.

The Committee offer the publication price in money for the 4th number of the 1st volume, published January, 1830; for the complete 2d volume, commencing April, 1830; for the complete 3d volume (1831); for the complete 5th volume (1833); and for the complete 7th volume, commencing April, 1835. They will also be glad to receive and pay for the January and July numbers of 1857; for the March number, 1856; for the 37th volume (1865); and for the January numbers for 1866, 1867 and 1869, and the July and September number, 1870.

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NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume

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☞ Foreign Exchanges sent to Mr. C. J. Skeet, Bookseller, 10 King William St., Charing Cross, London, W. C., directed "for the American Journal of Pharmacy, care of John Pennington & Son, Philadelphia U. S.," will reach us.

THE

AMERICAN JOURNAL OF PHARMACY.

OCTOBER, 1872.

THE TWENTIETH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Central Rink, located on Euclid avenue, near Monument Square, in the City of Cleveland, had been selected by the Local Secretary, Mr. Henry C. Gaylord, to hold the meeting. The hall is very large, and is surrounded on three sides by a spacious gallery, affording ample room and good light for the exhibition. A large room, situated directly over the entrance, had been arranged for the meeting, and conveniently seated about 200 persons. Six sessions were held, the first on the afternoon of Tuesday, September 3d, and the last one on the forenoon of the following Friday.

First Session—Tuesday Afternoon.

The meeting was called to order, at 3½ o'clock, by the President, Professor Enno Sander, of St. Louis, Professor John M. Maisch acting as Secretary. The roll being called, 56 members were found to be present. A Committee on Credentials was appointed, consisting of Prof. J. Faris Moore, of Baltimore, Mr. Robert J. Brown, of Leavenworth, and Mr. W. J. M. Gordon, of Cincinnati.

The Committee subsequently reported having examined the credentials of the following associations, viz., the Massachusetts, New York, Maryland, Cincinnati, Louisville, Chicago, Kansas, Ontario and Tennessee Colleges of Pharmacy; the New Jersey, Newark, Columbia, Allegheny County and Saginaw Valley Pharmaceutical Associations, and the Alumni Associations of the Massachusetts, New York and Philadelphia Colleges of Pharmacy. Delegations were also reported

to be present from the St. Louis and the Philadelphia Colleges of Pharmacy, and from the Alumni of the Maryland College, but their credentials were not handed in until the next morning, when also the credentials of a delegation from the Mississippi State Pharmaceutical Association were received. Two of the associations were represented by one delegate each, and one by two delegates, while all the others had appointed a full delegation of five, nearly all the delegates being present.

The report of the Committee was received and the Committee continued.

All the members of the Executive Committee except the Permanent Secretary being absent, Dr. S. S. Garrigues, of East Saginaw, Mich., acted in the place of the Committee, and reported the names of 46 applicants for membership. It was observed that several applicants had been vouched for by only one member; these cases were recommitted to the acting Executive Committee, and, additional vouchers having been obtained, the candidates were duly balloted for and reported unanimously elected, Messrs. Jos. L. Lemberger, of Lebanon, Pa., and Alb. B. Clark, jr., of Galesburg, Ill., having acted as tellers.

The roll as amended by the delegations, and the members elected was again called, when 80 members were found to be present.

The following Committee reports were received at the first session: Executive Committee, with the report of the Permanent Secretary; Committee on the Drug Market, and Committee on Pharmaceutical Legislation. Professor Moore reported verbally for the Committee on the Liquor Dealers' License of Apothecaries, and stated that the efforts of the Committee had been unsuccessful, Congress at its last (short) session not having had the time of considering the propriety of removing this onerous tax from pharmacists.

The Secretary read the report of the Executive Committee and the Permanent Secretary. The Executive Committee reported the decease of the following five members during the past year, viz.: Robert J. Taylor, of Newport, R. I.; William J. Watson, of Williamsburg, N. Y.; James E. Bright, of Worcester, Mass.; John C. Everson, of Philadelphia, and Robert J. Davies, of Brooklyn, N. Y.

The report of the Secretary suggests to procure some chemical and technological journals, in addition to those received at present, for the use of the Committee on the Progress of Pharmacy in compiling

their annual report; also that the printed Proceedings be more copiously illustrated than heretofore by wood-cuts and engravings. The incidental expenses of the Secretary were considerably larger than during the previous year, the two items of freight and postage alone causing an increase of expenses amounting to $141.71, owing to the large size of the last volume. The Secretary then refers to a charge brought against him by the "Pharmaceutische Zeitung," of May 11 last, of altering, in the translation, the address of the North German Apothecaries' Union, and says, in regard to this matter:

The criticized passage refers to the plea against removing the restrictions from the practice of pharmacy in Germany, which has been extensively advocated there for some years past, and touches a question in which American pharmacists have no interest, and for which they feel no sympathy. For these reasons an *intentional* omission or alteration is out of the question; moreover, none of the documents presented to this Association in a foreign language have ever been translated *verbally*, whether they were afterwards ordered to be published or not. The sentence to which objection was taken is as follows,* the verbal translation being italicized: "Our *only* hope rests in the recognition of this, and we trust that the (unfavorable) *sad* experience of those countries in which the unrestricted practice of pharmacy exists may prevent our governments from *the great error of* its introduction."

The Secretary likewise communicated to the Association the preamble and resolution passed by the College of Physicians of Philadelphia in regard to the keeping and dispensing of poisonous remedies.†

The appointment of the Nominating Committee being in order, the delegations of the above associations appointed the following gentlemen, one from each delegation: Messrs. Joel S. Orne, Paul Balluff, J. Faris Moore, John F. Judge, C. Lewis Diehl, Thomas N. Jamieson, Robert J. Brown, Henry J. Rose, Benjamin Lillard, Robert W. Gardener, Robert W. Vanderwoort, Daniel P. Hickling, William H. Brill, Leander Simoneau, Charles A. Tufts, Thomas Starr, Charles L. Eberle. The Association requested the delegations from the Philadelphia and the St. Louis Colleges of Pharmacy to appoint one member each, when Messrs. Joseph P. Remington and Enno Sander were named. From the Association at large the following members were appointed by the President to serve on the same Committee: Messrs. George W. Sloane, Indianapolis; Henry J. Menninger, Ral-

* See Proceedings of the Amer. Pharmac. Assoc., 1871, p. 78.
† See Amer. Journal of Pharmacy, 1872.

eigh, N. C.; Alfred S. Lane, Rochester, N. Y.; Louis J. Merkel, Cleveland, and Charles A. Heinitsh, Lancaster, Pa.

Mr. James T. Shinn, from the Business Committee, reported on the amendment to the by-laws proposed at the last session of the nineteenth meeting, relating to the appointment of a Council to prepare all business for the Association. The report was made the special order for the next day, at 11 o'clock A. M.

The President now read his annual address, an able document, reviewing the labors of the Association and its committees, and making several important suggestions.

The address was, together with the report of the Permanent Secretary, referred to a committee consisting of Messrs. William Saunders, William S. Thompson and Joel S. Orne, after which the Association adjourned until the next morning, at 9 o'clock.

Second Session—Wednesday Morning.

After the reading and approval of the minutes of the first session, the Nominating Committee recommended the election of the following officers for the ensuing year:

President.

ALBERT E. EBERT, ... Chicago, Ill.

Vice-Presidents.

SAMUEL S. GARRIGUES, Ph. D., . . . East Saginaw, Mich.
EDWARD P. NICHOLS, M. D., ... Newark, N. J.
HENRY C. GAYLORD, ... Cleveland, Ohio.

Executive Committee.

THOMAS S. WIEGAND, *Chairman*, . . . Philadelphia.
GEORGE LEIS, ... Lawrence, Kansas.
CHARLES L. EBERLE, ... Philadelphia.
HENRY J. MENNINGER, ... Raleigh, N. C.
JOHN M. MAISCH, *Permanent Sec'y, ex officio*, Philadelphia.

Committee on Progress of Pharmacy.

LOUIS DOHME, *Chairman*, ... Baltimore.
JOS. P. REMINGTON, ... Philadelphia.
EMIL SCHEFFER, ... Louisville, Ky.
CHARLES B. SMITH, ... Newark, N. J.,
Local Secretary, ex officio.

Committee on Drug Market.

P. Wendover Bedford, *Chairman*,	New York.
William H. Brown,	Baltimore.
William P. Keffer,	New Orleans.
William H. Brill,	Pittsburg, Pa.
William S. Merrell,	Cincinnati.

Committee on Papers and Queries.

C. Lewis Diehl, *Chairman*,	Louisville.
Henry N. Rittenhouse,	Philadelphia.
John F. Hancock,	Baltimore.

Business Committee.

Paul Balluff, *Chairman*,	New York.
Charles H. Dalrymple,	Morristown, N. J.
Wm. H. Crawford,	St. Louis.

A ballot being ordered, Messrs. J. F. Hancock and C. L. Eberle acted as tellers, and reported the election of the nominees.

The Committee on Credentials handed in credentials from delegations of the Philadelphia College of Pharmacy, the Alumni Association of the Maryland College of Pharmacy, and the Georgetown College School of Pharmacy. Objections were raised against the reception of the latter delegation, it being contended that the words "Colleges of Pharmacy," in Article vi, Chapter vi, of the By-Laws, referred to pharmaceutical associations bearing this title, and not merely to educational institutions, and that the representation by delegates was accorded to the local associations composed of pharmacists and druggists, and not merely to the faculties of the teaching Colleges of Pharmacy. The subject was, on motion, referred to a Committee composed of one from each recognized delegation present and five members appointed by the President from the Association at large.

The President elect, Mr. Albert E. Ebert, of Chicago, was conducted to the Chair by Professors William Procter, Jr., and J. F. Moore, and a vote of thanks was then passed to the retiring officers.

Fifteen applicants for membership were elected.

Dr. Charles A. Tufts read the Treasurer's report for the past year, which was referred to an Auditing Committee, consisting of Messrs. W. J. M. Gordon, of Cincinnati, T. H. Patterson, of Chicago, and J. S. Robinson, of Memphis. The report accounts for $4781.06 passing

through the Treasurer's hands during the year, and shows a balance of $733.41 on hand at the beginning of the meeting. The Proceedings for 1871 were published at an expense of $5·50 for each member.

The hour of 11 having arrived, the special order of the day was called up, viz., the creation of a council, to be composed of the officers of the Association and of the members of the Executive Committee, the Committee on Papers and Queries, and of the Business Committee, the object being to have all business matters digested and arranged for each session, in order to gain more time for the discussion of scientific subjects. Objections were raised against this proposition, the speakers generally regarding such an innovation as a centralization of too much power in the hands of a few members, who might then virtually control the business of the Association. A motion to indefinitely postpone the proposed amendment was carried without a dissenting vote.

Professor Procter read the report of the Committee on Papers and Queries, proposing a number of subjects for investigation during the coming year. The report was accepted.

An invitation from the Committee on entertainment of the Cleveland pharmacists and druggists was received and accepted with thanks, to participate in an excursion on Lake Erie on Thursday afternoon.

The Secretary was directed to telegraph to the Chairman of the Committee on the Progress of Pharmacy, Dr. Thos. E. Jenkins, at Louisville, nothing having been heard as yet of the expected report.

The report of the Committee on the Drug Market was read and accepted; also the report of the Auditing Committee, who had found the Treasurer's accounts correct and his books perfect in neatness and accuracy.

The President appointed the following Committee on Specimens: Dr. H. J. Menninger, Raleigh, N. C., Emil Scheffer, Louisville, Ky., C. C. Hohly, Toledo, O., Wm. McIntyre, Philadelphia, and M. L. M. Peixotto, N. Y.

An album containing a large number of photographs of prominent British pharmacists was presented by Professor Procter in behalf of Mr. Henry B. Brady, of Newcastle-on-Tyne, who had attended the St. Louis meeting of the American Pharmaceutical Association. The gift was received with the hearty thanks of the Association.

The Secretary laid before the Association meteorological cha[rts] and sketches from Brig. General Albert J. Myer, the Chief Si[gnal]

Officer at Washington, D. C., which were thankfully accepted, the Executive Committee being directed to reproduce these documents in the forthcoming Proceedings for the general information of the Association.

The Association then adjourned into the exhibition room, and, guided by the Committee on Specimens, examined the various interesting articles on exhibition.

Third Session—Wednesday Afternoon.

The minutes of the second session having been read and approved, the following preamble and resolution, offered by Dr. E. R. Squibb, were unanimously adopted:

Whereas, some twenty of the older members, after having been repeatedly notified, have failed to respond to the action of the Association in regard to relinquishing or declining to relinquish their rights to life membership; and whereas, the subject of life membership cannot be finally disposed of while such members refuse to respond to the notification by the officers; therefore

Resolved, That all members who fail to notify the Treasurer that they decline to relinquish their right to life membership before the first day of May next, are declared hereby to have relinquished the said rights.

The following papers were read in answer to queries propounded last year:

No. 12. On the production of milk sugar in the United States, by Jos. L. Lemberger, of Lebanon, Pa.

No. 13. On avoiding the pectinous principle from senega in the syrup, by R. Rother, of Chicago.

No. 15. On tests for the purity of the volatile oil of Erigeron Canadense, by E. J. Weeks, of Jackson, Mich.

No. 19. On hand drug-mills, by Thos. J. Covell, of Jersey City, N. J. The author gives the preference to that manufactured by Messrs. Hance Bros. & White, of Philadelphia.

No. 23. On the best arrangements for the dispensing counter, by John F. Hancock.

No. 28. On the quality of the commercial glacial phosphoric acid, by Prof. A. B. Prescott, of Ann Arbor, Mich.

No. 31. On commercial creasote, by Prof. Enno Sander, of St. Louis.

Dr. E. R. Squibb read two interesting papers, entitled "Note on Aconite Root," and "Note on Rhubarb," exhibiting several chests of the latter in illustration.

Invitations were extended to the faculty of the Cleveland Medical College and of the Medical Department of the University of Wooster to take seats upon the floor, after which the Association adjourned until the next morning, at 9 o'clock.

Fourth Session—Thursday Morning.

The reading and approval of the minutes was followed by the reading of a telegram from Dr. T. E. Jenkins, stating that the report of the Progress of Pharmacy would be ready for the Publishing Committee. The Association granted time until October 1st to finish the report, and, if it cannot be finished by that time, requested the chairman to hand it in at the next annual meeting as a volunteer paper.

A committee to consider and report on the time and place of holding the twenty-first annual meeting was appointed, as follows: Robert J. Brown, of Kansas; Charles L. Eberle, of Pennsylvania, and Dr. Henry J. Menninger, of North Carolina.

The delegation from the Georgetown College School of Pharmacy requested, through the committee appointed at the second session, to be permitted to withdraw the credentials, and to omit the discussion on this subject from the printed Proceedings. The request was granted by a vote of 58 ayes against 19 nays, and the subject of representation at the annual meetings was then recommitted to the same committee with the instruction to bring in, on the following morning, an amendment to the by-laws clearly defining the conditions.

Credentials were received from the delegation of the Mississippi State Pharmaceutical Association, and ten applicants for membership were duly elected.

Mr. Edward L. Milhau, the chairman of the Committee on Unofficinal Formulas, reported by telegraph that the experiments and the written report were not completed. The committee was continued, and all reports of special committees not handed in before the final adjournment were referred to the next annual meeting. The Committees on Pharmaceutical Legislation, and on Arrangements for the Meeting of 1876, were likewise continued, and a Committee on Adulterations and Sophistications was appointed as follows: Charles Rice, New York, chairman; Thomas N. Jamieson, Chicago, and Emil Scheffer, Louisville.

Mr. Paul Balluff read a very interesting essay on the legislation regulating the practice of pharmacy in this country, and reviewing briefly the laws of some European countries.

Mr. William Saunders reported, on behalf of the Committee on the President's Address and the Secretary's Report, approving in the main the suggestions contained in both documents, and concluding as follows:

We have duly considered the resolutions of the College of Physicians of Philadelphia—appended to the Secretary's report—and, while we fully approve of the idea of surrounding poisonous medicines with every possible safeguard, yet, in consequence of the great difference of opinion among pharmacists as to the advisability of using special bottles for dangerous compounds, or the practicability of giving the proper antidotes for poisons within the compass of a small label, your Committee do not recommend the Association to take any action on these resolutions at present.

The report was, on motion, accepted, and the suggestions contained therein adopted as such.

It was announced that, owing to threatening storms, the lake excursion contemplated for this afternoon was necessarily postponed until the following afternoon. This invitation for the next day was received with the hearty thanks of the Association, but, on account of the business arrangements of many members, was respectfully declined. The invitation for Thursday afternoon was, however, soon after renewed, in consequence of which the Association afterwards adjourned until Friday morning.

Mr. Ottmar Eberbach read a paper in answer to Query 38, on the quality of a number of elixirs found in the market.

Mr. C. L. Eberle moved an amendment to the Constitution, looking towards the creation of a sinking fund, which, under the rules, lies over until the next annual meeting.

Special Session—Thursday Afternoon.

In consequence of the inclemency of the weather, the lake excursion could not take place, and, at the request of 21 members, President Ebert called a special session for scientific business, to convene at 3 o'clock P.M. The meeting was well attended, and was exclusively devoted to the reading of papers and to discussion on scientific subjects.

The following answers to queries were read:

No. 45. On formulas for unofficinal preparations, and particularly for elixirs, by Rob. J. Brown.

No. 51. On sneezeweed, by John M. Maisch.

No. 54. On vegetable wax, by George C. Close.

No. 55. On the educational requirements of apprentices, by Professor Edward Parrish.

No. 33. On commercial seidlitz powders, by Chas. W. Grassly.

No. 56. On Chinese blistering flies, by John M. Maisch.

Volunteer papers on the following subjects were read:

On Tennessee Opium, by Benjamin Lillard.

On a New Form of Percolator, by Dr. E. R. Squibb.

In connection with several of these papers, the subjects treated of were exhibited, and Dr. Squibb showed the glass percolator in actual operation.

Mr. R. P. Smith, of the firm of Whitall Tatem & Co., of Philadelphia, by invitation, addressed the meeting on the subject of glass and glassware.

After the renewal of the invitation to the lake excursion for Friday afternoon, the special session was adjourned.

Fifth Regular Session—Friday forenoon.

The minutes of the previous sessions having been read and approved, the report of the Committee on the stamp-tax was read, recommending to petition Congress for a modification of the law on this subject. The report was accepted, adopted and referred to a Committee of three for action. The Committee consists of Messrs. Chas. H. Dalrymple, of Morristown, N. J., J. Faris Moore, of Baltimore, and William Hegeman, of New York.

The Committee on Photographic Album made a verbal report, and exhibited an album containing the photographs of many members. The Committee was continued to collect photographs, and the album placed in charge of the Secretary, to be exhibited at each annual meeting.

The Treasurer was authorized to honor the draft of Mr. H. C. Gaylord, the local Secretary, for expenses incurred in making provisions for this meeting.

The Secretary was directed to send copies of the forthcoming new Pharmacopœia of the United States to those foreign pharmaceutical societies with whom the American Pharmaceutical Association is in correspondence.

A Committee, consisting of Professor William Procter, Jr., Dr. E. R. Squibb and Mr. E. H. Sargent, was appointed to select a reporter

on the Progress of Pharmacy, to be appointed at the next annual meeting, and to suggest such changes in the By-Laws as may be necessary.

An essay, by C. F. Fredigke, on the manufacture of chemicals by the apothecary, was read, in answer to query 16; also the following volunteer papers:

"Note on Aloes" and "On Citrate of Bismuth and Ammonia," by Dr. E. R. Squibb.

On Syrup of Ferrous Nitrate, by Robert W. Gardener.

On Elixir of Mandrake, by G. H. Schæffer.

On Extract of Cannabis indica, William Saunders.

On an herb press, by Joseph Harrop.

The Committee appointed to select a place for holding the next annual meeting, reported in favor of Louisville, Ky. Amendments were made, substituting Nashville, Tenn., and Richmond, Va. The latter amendment was adopted by a vote of 40 ayes against 33 nays, and the resolution as amended was then carried. The Executive Committee was authorized to make all the necessary arrangements in case the local Secretary to be elected should be unable to act. The third Tuesday in September, 1873, was fixed for the time of the next meeting, and Mr. Thos. H. Hazard was then elected local Secretary.

The queries not otherwise disposed of were, on motion, dropped, and the members generally recommended to investigate the subjects and report voluntarily thereon at the next meeting.

The Committee on the Georgetown College Delegation proposed to amend Article vi, Chapter 6, of the By-Laws, by making it read: "All local organizations of pharmacists shall be entitled," &c. Action was deferred until the first session of the next meeting.

The same disposition was made of the proposal to appoint the Committee on specimens at the first session of the annual meetings.

Resolutions of thanks were passed to the Cleveland pharmacists and druggists, for kindness shown to the members at this meeting; to Mr. James McIntosh, Signal Officer at Cleveland, for furnishing daily reports, statistics, charts, &c., and to the press of Cleveland, for the attention shown this meeting.

The report of the Committee on Specimens was read and referred.

Professor Robert Bentley, of London, England, and Stanislas Martin, of Paris, France, were elected honorary members.

A Committee of five (Messrs. John F. Hancock, Baltimore; James

G. Steele, San Francisco; Hampden Osborne, Columbus, Miss.; Robert J. Brown, Leavenworth, and Ottmar Eberbach, Ann Arbor, Mich.) was appointed to take into consideration the subject of elixirs and similar unofficinal preparations, in all its bearings upon pharmacy, and, if deemed proper, to report suitable formulas for the guidance of the members of this Association.

After the election of several new members, the Association adjourned, to meet again in the City of Richmond, Va., on the third Tuesday of September, 1873, at 3 o'clock P. M.

THE THIRD CONVENTION OF THE TEACHING COLLEGES OF PHARMACY OF THE UNITED STATES.

At the eighteenth annual meeting of the American Pharmaceutical Association, held in Baltimore 1870, a convention of pharmaceutical societies met pursuant to a call of the Maryland College, and discussed several important questions relating to pharmaceutical apprenticeship and education. These transactions were reported in the "American Journal of Pharmacy," 1870, pages 500—504. In order to confine the deliberations of this body strictly to educational subjects and to matters relating to the welfare of the colleges of pharmacy; also to avoid here the discussion of subjects of immediate interest to the profession at large, which properly belong to the objects of the national Association, it was deemed best to limit these conventions to the representatives of the teaching colleges, and, at St. Louis, in September, 1871, a constitution was adopted providing for an annual meeting to take place at the time and place of the annual meetings of the American Pharmaceutical Association. Mr. E. H. Sargent was elected President, and Professor J. Faris Moore, Secretary. A committee, consisting of Professors Moore and Maisch, was appointed to suggest subjects for discussion at the third convention, and to give timely notice of the same to the different teaching colleges. The questions agreed upon by this committee were published on pages 329 and 330 of the July number of this Journal.

The third convention met at the Kennard House, in the City of Cleveland, on the evening of September 5th, when Dr. Charles A. Tufts was elected President and Professor J. M. Maisch, Secretary. The Colleges of Pharmacy of Massachusetts, New York, Philadelphia, Maryland, Cincinnati, Louisville, St. Louis and Chicago, and the Columbia College School of Pharmacy, were represented.

The retiring President, Mr. E. H. Sargent, had sent an address, which was read, and listened to with marked attention, discussing principally the necessity of a certain standard of education prior to admission to the lectures of the colleges, the propriety of dividing the lectures into a junior and a senior course, and the advisability of granting one or more higher degrees after that of Graduate in Pharmacy has been attained. The address was referred to the Committee, consisting of Professors Moore and Maisch, subsequently appointed for the purpose of selecting subjects for the consideration of the fourth convention.

The questions submitted by the Committee for the present year were then taken up seriatim, discussed, and disposed of by the following resolutions, which were passed unanimously:

Resolved, That this Convention regards analytical chemistry as essential for a thorough pharmaceutical education.

Resolved, That this Convention considers lectures on and practical instruction in qualitative analysis as very desirable for second course students.

Resolved, That the Colleges of Pharmacy be requested to communicate the questions propounded for written answers in the annual examinations to all other colleges of pharmacy in the United States.

Resolved, That this Convention considers the establishment of the degree of Master in Pharmacy as desirable, to be conferred upon graduates in pharmacy of not less than three years' professional service, who shall have passed another more stringent examination than "graduates" receive.

Resolved, That the degree of Doctor in Pharmacy should be a purely honorary one, to be conferred only upon pharmacists who have distinguished themselves in the advancement of the science of pharmacy.

Resolved, That the colleges of pharmacy are requested to annually report through their delegates to this Convention the names of those upon whom their honorary degree has been bestowed.

The Convention then adjourned, to meet next year simultaneously with the American Pharmaceutical Association.

PHARMACEUTICAL NOTES.

By J. Donde.

Soluble Sulphate of Quinia.—Soubeiran and others, speaking about this preparation, say that the officinal sulphate must be dissolved in water acidulated with sulphuric acid, the solution evaporated, &c.; but, as the quantity of acid is not given, the success is not certain—

an excess of acid prevents the crystallisation of the salt, and a yellow, somewhat greenish and deliquescent mass is obtained. After having failed twice, I succeeded well with the following exact proportions:

Quinia sulphate, basic, ...	150 grm.
Rain water, ...	2 litres.
Sulphuric acid, 66°, ...	22 grm.

The acid is mixed with the water in a porcelain capsule, the sulphate is then added, and the mixture occasionally agitated until dissolution has taken place, which required about an hour at a temperature of 29° C. After filtering, the evaporation is continued till the liquor is reduced to 600 grm.; 24 hours afterwards the crystals are taken out, and the mother liquor remaining is evaporated a second time in order to obtain more crystals. The mother liquor finally remaining is used for precipitating the quinia.

An Elixir of Citro-Lactate of Iron.—This liquor, which was imported in this city years ago as a special preparation of Dr. Thermes, of Paris, was prepared by me after the following formula:

Liquor citrate of iron and ammonia, . .	27 grm.
Lactate of iron, ...	4 grm.
Rain water, ...	1400 grm.
White sugar, ...	300 grm.
Aromatic spirit of Garus, ...	200 grm.

The lactate is dissolved in the water, the other substances are added, and when the sugar is dissolved the liquid is filtered.

Lemon Syrup.—

Simple syrup, ...	50 centilitres.
Lemon juice purified, ...	45 grm.

The syrup is concentrated to 33° by boiling, and when it is cool the lemon juice, clarified by repose, is added to it. One ounce and a half of this syrup and eight ounces of water will make a very agreeable lemonade.

Merida, Yucatan, August 28, 1872.

THE USE OF BULLOCK'S BLOOD IN MEDICINE.

By William C. Bakes.

In the last number of the Journal, on page 410, appeared an extract from the *Pharm. Journ. and Trans.*, July 27, 1872, from a

correspondent of *The Med. Times and Gazette*, under the title of "Bullock's Blood—A New Remedy," in which the use of blood is referred to as a new remedial agent for anæmia, and mentioning that cases of phthisis pulmonalis have been as much benefitted by it as they would have been by cod liver oil. The writer also states that a French pharmacien has prepared an extract of blood, which is administered in the form of pills, each of which, weighing about three grains, is said to be equivalent to half an ounce of blood. My purpose in calling attention to this article is to state that, though the use of powdered blood may be a novelty in Europe, it is not a new thing in this country. In 1852, at the suggestion of the late Professor Samuel Jackson, M. D., Mr. Elias Durand, an eminent pharmaceutist of this city, carefully evaporated fresh bullock's blood to the consistence of an extract, which was reduced to powder, and prescribed by Dr. Jackson under the title of pulv. sanguinis. The following is a copy of one of his prescriptions:

℞. Pulv. sanguinis, ... ʒi.
" aromat.,
" sacchari, *aa*, ... ʒss.
M. et divide in chart. No. xij.

Dr. Jackson prescribed this preparation in a large number of cases with satisfactory results, and I think I am correct in stating that the use of this remedy suggested to him the compound mixture of phosphates, afterwards considerably modified, and now popularly known under the name of chemical food.

The use of blood, both pure and in combination with wine and other adjuvants, has frequently been suggested, and experience may yet prove its adaptation as a nutritive tonic and useful in anæmic conditions of the system.

ON THE PREPARATION OF THE BROMIDES OF QUINIA, MORPHIA, STRYCHNIA AND CALCIUM.

By George MacDonald.

The bromides of the alkaloids may be readily prepared in small quantities by precipitating a solution of their neutral sulphates with bromide of barium.

As bromide of barium is a salt not met with in commerce, the operator will have to make it for himself, by saturating a solution of hy-

drobromic acid with freshly precipitated carbonate of baryta. The following is a good method:

Put 1 oz. by weight of bromine and 8 fluidounces of water into a pint jar. Attach a sulphuretted hydrogen apparatus, being careful to so place the end of the delivery tube that it will touch the surface of the bromine, and pass a stream of sulphuretted hydrogen slowly through until the bromine is entirely converted into hydrobromic acid. Filter the hydrobromic acid solution into a capsule, and warm gently until it has lost all sulphurous odor.

To make the carbonate of baryta, to a boiling solution of 2 oz. of chloride of barium in a pint of water, add solution of carbonate of ammonia (to which a little ammonia has been added) in excess, wash the precipitate three or four times by decantation, and afterwards transfer it to a filter, and continue the washing until the filtrate ceases to produce any turbidity on the addition of a solution of nitrate of silver, to which a few drops of nitric acid have been added. Then remove the precipitate from the filter, and mix it with sufficient water to bring it to the consistence of thick milk.

To make the bromide of barium, add to the hydrobromic acid solution small portions at a time of the mixture of carbonate of baryta and water, until rather more than three-fourths of the mixture has been added. When this quantity has been added, apply a gentle heat and shake vigorously. Then filter a small portion and test with litmus paper. If it shows an acid reaction, more carbonate of baryta must be added until the reaction is neutral. When a sufficient quantity of carbonate of baryta has been added, filter and evaporate to 4 fluidounces. It is not necessary to proceed to crystallization, as the salt is very soluble, and therefore difficult to crystallize in small quantities, and a solution of it is really what is wanted after all.

Bromide of Quinia.—To make this salt, dissolve 1 oz. of medicinal sulphate of quinia in 32 fluidounces of boiling water, and add solution of bromide of barium until a precipitate ceases to be produced. (A little less than 5 fluidrachms of the solution of bromide of barium made by the formula given above, will be about the proper quantity.) Filter a small quantity of the solution, acidulate it slightly with nitric acid, and test for baryta with a few drops of diluted sulphuric acid. If a whitish turbidity is produced, it is an indication that too much bromide of barium has been added, and enough sulphate of quinia must be added to entirely decompose it. If, on the other hand, the

presence of baryta in the solution was not indicated, slightly acidulate another portion of the filtrate with nitric acid, and add a drop or two of solution of bromide of barium. If this produces a whitish turbidity, it shows that there has not been enough bromide of barium added, and more must be *very carefully* added, until the sulphate of quinia is all or *nearly* all decomposed. It is better, of course, to have a little undecomposed sulphate of quinia in the solution than *any* bromide of barium.

When the precipitation of sulphate of baryta is completed, filter the solution, while still warm, into a capsule, and evaporate at a gentle temperature, until crystallization begins to set in. Then remove from the fire and set aside to crystallize. The bromide of quinia will be found to be aggregated in *globular clusters* of brilliant silky needles, and the singularly beautiful appearance of the crystallization is alone almost ample compensation to any ne for the little trouble he may go to in making it.

Drain the crystals well, remove them from the capsule, and place between sheets of bibulous paper and set aside to dry. The crystals are soluble in about 40 parts of cold water, and appear to be anhydrous. At least I have had a small quantity exposed to the air for a couple of weeks, and they do not show the slightest appearance of efflorescence. I have not made accurate weighings, and therefore cannot speak positively.

Bromides of Morphia and Strychnia.—These salts may be prepared after the same method as bromide of quinia, with slight modifications, which will readily suggest themselves to the mind of the operator. They both crystallize well, and are quite as soluble as the corresponding sulphates.

Bromide of Calcium.—The process of Mr. James R. Mercein, in the March number of the *Journal*, is probably as good a one as could be devised. The majority of apothecaries, however, will find the following to be a more ready and convenient way of making it:

Dissolve 4 oz. of bromide of ammonium in a pint of water. Put in a flask and bring to the boiling point. Keep boiling, and add milk of lime (made from *pure* calcined lime), in small quantities, until ammoniacal vapors cease to be evolved. The operator can easily tell when this point has been reached, by the sense of smell. Filter the solution, evaporate to a syrup consistency, remove from the fire, and stir until cold. This salt is quite deliquescent, and requires to be

kept in well-stoppered bottles. In preparing this salt, care must be taken as to the quality of lime used, as some limestones contain a large per centage of carbonate of magnesia, and the salt obtained by using a lime burnt from limestone of that quality, would necessarily contain a correspondingly large per centage of bromide of magnesium.

Cairo, Ill., Sept. 1872.

Note.—In decomposing bromide of ammonium by caustic lime, care must be taken to avoid an excess of the latter, since a basic bromide (oxybromide) of calcium is very readily formed, having a strong alkaline reaction.

The term *bromide of quinia* has of late been frequently used in medical journals, but is incorrect. The salt being a combination of *hydrobromic acid* with the alkaloid *quinia*, should be called hydrobromate of quinia. Its composition is analogous to that of hydrochlorate (muriate) of morphia, and its proper name is formed correctly only in perfect analogy with that of the latter. —Ed. Am. Jour. Pharm.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Arsenic in coal soot has been observed by H. Reinsch, who found it to contain also iron, manganium and copper. 272 grm. soot strongly compressed, evolved on incineration, first, the odor of bitter almonds, then of arsenic, afterwards of sulphurous acid, and left 166 grm. of red brown ashes, in which traces of arsenic were still observed.—*N. Jahrb. f. Pharm.* 1872, *July*, 18–20.

The active principle of the aqueous distillate of cantharides. E. Rennard proved, from the blistering effects, the presence of cantharidin in a cat poisoned with the distillate obtained from cantharides, and proved its presence also in the distillate in the same manner. The author altered Bluhm and Dragendorff's method for preparing cantharidin somewhat; the mixture of powdered cantharides, magnesia and water is exsiccated, the residue saturated with chloroform, supersaturated with sulphuric acid and exhausted with ether. He obtained from four samples 0.38, 0.431, 0.439, and 0.57 per cent. of cantharides.

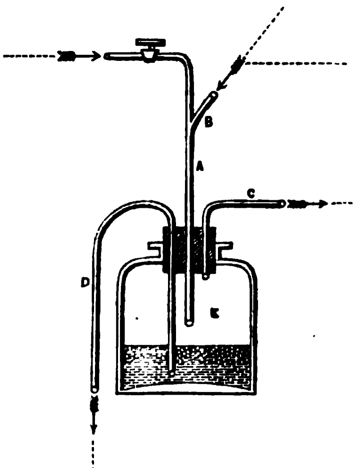
Boiling water dissolves between 0.290 and 0.297, cold water, 0.2, boiling alcohol, 2.03 to 2.168, cold alcohol, 0.127, boiling benzol, 3.38, cold benzol, 0.51, boiling muriatic acid of 1.17 sp. gr., 0.3, and the cold acid, 0.137 per cent. cantharidin.

Cantharidin volatilizes with the vapors of chloroform at 60°C Distilled with water, the first portions contain the largest proportion of cantharidin. The aqueous distillate of cantharides contains besides cantharidin an animal oil of low boiling point, which decreases with the age of the insects.—*Ibid.* 32–34.

Preservation of pencil and India ink drawings.—L. Erckmann pours upon the paper placed upon a glass plate or smooth board, sufficient collodion containing 2 per cent. of stearin. When dry the paper may be washed off with water, without affecting the drawing.—*Ibid.* 52.

The removal of ink spots from colored fabrics is best effected by a concentrated solution of pyrophosphate of sodium, which dissolves the ink slowly without affecting the color.—*Ibid. from Polyt. Notizbl.*

A blowpipe worked by water is described in *Zeitschr. f. anal. Chem.*, the construction of which is readily seen in the accompanying cut.



The pipe A is connected with a hydrant or reservoir containing water, the flow of which is regulated by the stopcock. Running into the bottle E of the capacity of about a litre, air is drawn through the short side branch B; the water and air separate again in the bottle, the air escaping under pressure through C, to which, by means of India rubber tubing, a blowpipe is attached. The surplus water is carried off by the syphon D, and its flow is regulated so as to retain the water in the bottle at a uniform height. The pressure may be readily increased by lengthening the pipe A.

The conversion of pyrophosphates into phosphates may, according to Prinvault, be effected by acids. If sulphuric is used, the cause of the transformation is the production of an alkaline phosphosulphate; under the influence of boric acid, a phosphoborate is formed.—*Journ. de Pharm. d'Anvers*, 1872, *July*, 318.

Production of cymen from oil of turpentine.—Barrier treats, at

50°C., 1 equivalent of hydrated oil of turpentine, $C_{20}H_{16}4HO$ with 2 equivalents of bromine, when a thick liquid of the consistence of concentrated glycerin is obtained, containing two bromated compounds, as yet little known. On distilling, a large quantity of hydrobromic acid is disengaged; the distilled liquid is boiled for two hours over fragments of potassa and then subjected to fractional distillation; the liquid distilling between 176° and 179°C. presents all the characteristics of cymen; it is colorless, limpid, of a penetrating lemon odor, a specific gravity of 0.864 and the composition $C_{20}H_{14}$.—*Journ de Pharm. et de Chim.*, 1872, *Aug.*, 148.

Waterproof packing cloth which does not break is made by covering the fabric with the following varnish: 2 lbs. soft (potash) soap is dissolved in water and mixed with an aqueous solution of sulphate of iron. The washed and dried iron soap is dissolved in 3 lbs. of linseed oil, in which one-fifth lb. of caoutchouc has been previously dissolved. —*Chem. Centralb.*, 1872, *No.* 29, *from Polyt. Notizbl.*

Galvanoplastic.—To avoid the tedious process of rubbing plumbago over the surface of plaster or gutta percha moulds, Heeren proposed some years ago to saturate the plaster moulds with wax, paint it thinly with solution of nitrate of silver, and expose it to the action of sulphuretted hydrogen, the resulting sulphide of silver being a good conductor of electricity. The author now suggests the following solution as an improvement: 1 grm. nitrate of silver is dissolved in 2 grm. of water; to the solution is added 2½ grm. ammonia, sp. grav. 0.96, and then 3 grm. of absolute alcohol.—*Ibid. No.* 32, *from Mittheil. d. Gew. Ver. Hannover.*

Colored collodion, prepared with anilin colors by dissolving them in alcohol and adding to collodium, is far superior to anilin varnishes for coloring glass, mica, paper, photographs, prints, tinfoil, &c. Picric acid and some brown anilin colors cannot be used for this purpose. Anilin varnishes are better adapted for leather, hard linen, feathers and artificial flowers.—*Ibid. from Muster, Ztg.* xxi, 157.

The congealing point of bromine has been found by H. Baumhauer to be —24.5°C. (—12.1° F.); the statements in chemical works vary between —7.3 and —22°C., and doubtless are due to the presence of water, by which the freezing point of bromine is raised in consequence of the formation of hydrate. Solid bromine is a red brown crystalline mass.—*Zeitschr. f. Chem. New ser.*, vii. 727.

Alkaloids in Isopyrum thalictroides.—F. A. Harsten has discovered two alkaloids in the root of this plant, which he named isopyrina and pseudo-isopyrina. The former is obtained from the aqueous decoction by evaporating it to a thin syrup, precipitating with ammonia, and exhausting the dried precipitate with ether; on evaporating the ether it is left as a bitter, yellowish white powder; its muriate is amorphous and not precipitated from its aqueous solution by chloride of ammonium.

The root, previously exhausted by boiling water, is treated with alcohol, the tincture evaporated, the residue precipitated by ammonia, and the precipitate exhausted with ether. Pseudo-isopyrina is obtained in stellate needles; the solution of its muriate is precipitated by chloride of ammonium. Both alkaloids are decomposed by concentrated acids.—*Chem. Centralbl.*, 1872, *No.* 33.

A new method of cauterizing is recommended by Dr. B. Strauss, of Munich. He applies with a camel hair pencil some chloride of antimony, and immediately afterwards, with rotary movements, lunar caustic. The liquid rapidly becomes thick from the separation of chloride of silver, and the formation of aqua regia is easily recognized by its odor. The latter compound is the escharotic in this case, and being formed in a soft but thick mass, the operator has it in his power to confine its action to any desired spot or extend it at will. For deeper cauterizations, the process must be repeated several times. —*N. Repert. f. Pharm.* 1872, 330–335.

Estimation of nitrogen in black tea.—A. Vogel obtained from black tea, by maceration for 15 minutes, 23.5 per cent. aqueous extract, containing 2.8 per cent. nitrogen, while the residuary leaves yielded 3.58 per cent.—*Ibid.*, 327–328.

Ammonia in snow.—A. Vogel suggests that the great differences observed in the amount of ammonia contained in snow water, may be due to the temperature and to the manner of collecting the snow. In fresh snow fallen at from —15° to —19°C., he could not discover even traces of ammonia, while snow fallen at 0°C., contained a little more NH_3 than snow fallen at —3°C. If the snow has remained on the ground or upon the roof of a house for some time, the amount of NH_3 was increased, but varied for the different localities. Snow free from NH_3, slowly fusing in an open dish, contains, after 24 hours, appreciable quantities of ammonia.—*Ibid.* 327–330.

ON THE OCCURRENCE OF AMYGDALIN AND THE GENERATION OF HYDROCYANIC ACID.

By S. Henschen, of Upsala.*

The author has instituted a number of experiments, in which he proved the presence of hydrocyanic acid by paper dipped in tincture of guaiacum and solution of sulphate of copper, carefully avoiding ammoniacal vapors. If the paper turned blue, the flask was placed into warm water and a current of air passed through its contents and a refrigerated glass tube, the U bend of which contained a few drops of weak alkali; or the flask was heated, and the vapors were passed first through a Liebig's condenser and afterwards through a glass tube arranged as before. The liquids in the tube were afterwards used for the production of Prussian blue and sulphocyanide of iron, in the well-known manner.

Amygdalin treated with the meal of peas and of rye yielded hydrocyanic acid, but none with finely sifted wheat flour.

Sweet almonds yielded hydrocyanic acid, 10 grm. gave a faint reaction, 30 grm. distinct; they therefore contain a minute quantity of amygdalin.

Amygdalus nana, Lin. The seeds, pericarp, leaves, branches and buds yielded hydrocyanic acid.

Pyrus malus, Lin. 1 to 2 grm. of seeds yielded HCy; none was obtained from leaves, buds or branches.

Pyrus communis, Lin. The seeds yielded HCy, the leaves none.

Pyrus Cydonia, Lin. The isolation of the HCy generated from the seeds is with difficulty effected from the mucilaginous liquid.

Sorbus aucuparia, Lin. The yield of HCy from the seeds was not as large as might have been expected from the large yield from the bark.

Sorbus latifolia, Lin. HCy was obtained from 0·5 grm. seeds, and 17 grm. buds; none from sarcocarp, leaves, branches or bark.

Cratægus Virginica, (?). No HCy from any part of the plant.

Negative results were likewise obtained with the fruit of *Rosa tomentosa*, separated from the hip; with the seeds of the lemon and melon, and with allspice. Indications of HCy were obtained from 20 grm. of vetches (*Vicia*).

* Condensed from Neues Jahrbuch für Pharmacie, 1872, July 1—13—Upsala Läkare förenings—Förhandl. iv, No. 4.

The generation of HCy from vegetables is generally regarded as conclusive evidence of the presence therein of amygdalin; but Dr. Peckolt* has in 15 cases been unable to prepare amygdalin from the root of *Manihot utilissima*, which copiously generates hydrocyanic acid with water. Vetches† yielded, instead of amygdalin, a new crystallizable body of the composition $C_8H_{16}N_4O_6$.

The author observed that from the older branches of the almond hydrocyanic acid could be obtained only after the addition of a little of a bruised sweet almond, which quantity also increased the HCy obtainable from the younger branches and buds. It seems, therefore, as if amygdalin may sometimes occur in plants without the simultaneous presence of emulsin.

The author experimented also on the effect of acids upon the generation of hydrocyanic acid, and observed that tannin (to the amount of 6 per cent.) is without effect, but that the other acids prevent, to a certain extent, the splitting of amygdalin by altering the emulsin, and that mineral acids have a more powerful, and vegetable acids a weaker, effect. Acids do not precipitate the emulsin, and this principle does not lose its activity as a ferment by precipitation with alcohol.

To ascertain the presence of amygdalin, the vegetable material is finely powdered, the acid which may be present is neutralized by chalk, some coarse rye meal or a similar ferment is added, and then some water, after which the fermentation is allowed to proceed, and the presence or absence of hydrocyanic acid established, as described above.

THE MANUFACTURE OF OLIVE OIL IN CALIFORNIA.

For a number of years past, the olive tree has been cultivated with varying success throughout the Southern States, and especially on the islands on the coast of Georgia and Florida, and along the sea board of North Carolina. The quality of the product, however, not being the best, its manufacture has never assumed proportions of any magnitude, nor has it been able to compete with the oil imported from Europe.

A writer in the *Overland Monthly* publishes the information that the culture of the olive tree and the manufacture of oil from its fruit

* Analyses de Materia Medica Brasileira Rio Janeiro, 1868.

† N. Jahrb. f. Pharmacie, 1871, August.

is gradually becoming a leading industry in California. The character of the climate, and the soil of the valley of Santa Barbara and of the foot hills of Santa Inez, for sixty miles along the coast, are adapted to the production of the finest varieties of oil. It is predicted that this portion of the State will eventually be numbered among the most celebrated oil districts of the world.

The olive is propagated almost entirely by cuttings taken from the sprouts and branches of mature trees at the time of pruning. The cuttings are generally from ten to fifteen inches long and from half an inch to three or four inches thick; the thickest are the best. These are placed in a perpendicular position in a bed of good soil, six, eight, or ten inches apart, their tops level with the surface. The earth is pressed closely around them, and their ends are slightly covered to protect them from the drying influence of the sun. Here they remain, throwing out leaves and branches, until April or May, when, with as little disturbance as possible of the roots, they are taken up and, after being trimmed to a single sprout, are set out in the orchard, in rows about twenty-five feet apart each way. The ground between the trees may be cultivated for several years, with little or no detriment to the young trees. When the olives are to be gathered, cloths are spread under the trees and the berries are pulled from their branches by hand and thrown upon the ground, or are beaten off with a long rod. If they are intended for making oil, they are carried to a dry room or loft and scattered upon the floor, or, where this is not convenient, a drying frame is made—consisting of broad shelves one above another, and sliding in and out as the drawers of a bureau—and the berries are spread upon the shelves. By this exposure to a dry, in-door atmosphere, the berries ripen further, their watery juices are evaporated, the oil is released and, when the skins have been broken, flows more readily under pressure. A slight mold may gather upon the berries during the few days that they remain here, but not sufficient to have an injurious effect upon the oil, or it may be prevented entirely by stirring the berries daily.

The process of extracting the oil, as practiced in Santa Barbara, is simple, even to mediæval rudeness. A large, broad stone wheel is held by an arm from a centre post, and, by a horse attached to this arm, is made to traverse a circular bed of solid stone. The berries are thrown upon this stone bed, and are shovelled constantly in the line of the moving wheel until they are considerably mashed, but

not thoroughly or until the stones are broken. This process finished, the pulp is wrapped in coarse cloths or gunny sacks, and placed under a rude, home-made screw or lever press. The oil and juices, as they ooze through the cloth or sacks, flow into a small tank, and, as they increase, are distributed into other vessels, from the surface of which the oil is afterwards skimmed. The oil flowing from this first pressure is what is known as "virgin oil," and commands the highest price from connoisseurs of the table. Without further preparation the oil is now ready for use, except that, in order that any intrusive matter may be separated from the body of the oil and collected at the bottom of the oil cask or jar previous to bottling, it is set away for a time to rest. At the Mission of Santa Barbara, the oil is stored in huge antique pottery jars, that, ranged round the room, remind one of the celebrated scene of the jars in the story of "The Forty Thieves." The "second class oil" is the result of a second and more thorough crushing of the berries, in which even the stones are broken, and of a subsequent subjection of the pulp to the press. The berries are sometimes submitted even to a third process of crushing, and, previous to pressure, are brought to a boiling heat in huge copper kettles. The oil thus obtained is of an inferior quality, and is sold for use as a lubricator and also as an ingredient in the manufacture of castile and fancy toilet soaps, and for other purposes for which it is superior to animal oil. The residue of the berries is then returned to the orchard and scattered under the trees, and, possessing the qualities of a rich and rapid fertilizer, may be said to be yielded to us again revivified and luscious in the richer fruitage of succeeding years.

The tree, at five years of age, returns a slight recompense for care; and at seven an orchard should afford an average yield of about twenty gallons of berries to a tree. If there are seventy trees to an acre, there should be obtained from it one thousand four hundred gallons of berries. From twenty gallons of berries may be extracted three gallons of oil; and, if properly manufactured, olive oil will command $4 to $5 a gallon at wholesale. Thus, an average yield of olives, derived from an orchard covering one acre of land, will produce about $800 worth of oil. After deducting the entire cost of production and manufacture, a net profit may be anticipated of at least $2 per gallon; and thus, one acre, containing seventy trees, yielding an average of twenty gallons of berries, or the equivalent of three gallons of oil, each, will afford a surplus above all expenses of about $400 a year.

Olive culture is so simple that any one of ordinary intelligence may engage in it. The process of manufacturing the oil is an entirely different business, and belongs separate and apart from the cultivation of the olive. In time, it will not be expected, as now, that each grower shall be manufacturer also. As soon as the supply of olives in a neighborhood is sufficient to warrant the erection of suitable machinery for expressing the oil, every requisite for the purpose will be at hand. The olive grower's labors for the season will end with the deposit of his berries at the oil manufactory; and according to the custom of the olive districts of Europe, one half the oil from his berries will subsequently be returned to him, ready for use and for market.

A large part of the oil sold in this country, and purporting to be olive oil of Eropean manufacture, is the product of adulteration and imitation. It is generally manufactured in this country, and is composed principally of animal oil, though mustard seed oil and other inferior vegetable oils also form materials for its adulteration. Every housewife knows that olive oil purchased from the grocer, when exposed to a cold atmosphere, sometimes thickens and turns white or opaque in the lower part of the bottle; and every one familiar with the nature of olive oil knows that it retains its perfect transparency and uniform oily consistence under any temperature. Animal oil condenses under the influence of cold; but vegetable oil does not.* This difference has been well noted on the shelves of stores where the genuine and the adulterated oil have been ranged for sale, side by side. The genuine oil glows clear beneath the glass in all weathers; the adulterated oil turns flaky with the cold, and the lard goes down with the fall of the winter's thermometer. It is an advantage, also, of the genuine "virgin oil," obtained by home manufacture, that it retains its perfect sweetness longer than any other oil. "Virgin oil," made at the Santa Barbara Mission four years ago, is to-day in possession of the nice delicacy of its first flavor when fresh from the berries.—*Scientific American, Sept.* 28, 1872.

ON THE CULTIVATION OF THE OLIVE, NEAR VENTIMIGLIA.

By Mr. L. Winter.

(From a letter addressed to Mr. Daniel Hanbury, F.R.S.)

As you wish for a little information on the propagation of the olive

* Pure olive oil separates granular crystals below 10° C. (50° F.), consisting palmitin.—Ed. Amer. J. Ph.

in this part of Italy, I have drawn up a few remarks which, though not containing much that is new, may yet serve to complete or to confirm your own observations.

The different kinds of olive-tree we have in this country may be classed under three divisions:

1. *Olivastro*, the Wild Olive, *Olea europæa*, L., grows quite spontaneous, reproducing itself by seeds and suckers; leaves on young trees small and oblong,—on older trees a little larger and lanceolate; branches sometimes spiny; fruit small, oblong, and very bitter. This kind may be regarded as the parent of all the varieties.

2. Varieties reproducing themselves truly by seed, but not so freely as the *olivastro*, and having the fruit less bitter. Under this head may be placed the following:

α. *Pignuole.*—Branches greyish; leaves lanceolate, acute; fruits when ripe almost round, affording an oil of rather strong flavor. There are hundreds of these trees on the Capo Martino, near Mentone, quite wild.

β. *Columbaïre* (Genoese dialect).—Branches brownish; leaves varying in shape, but mostly obtuse; fruit large, somewhat pointed.

γ. *Spagnuole.*—Fruit more elongated than the preceding. These forms, α. β. γ., vary more or less *inter se.*

3. Varieties not reproducing themselves truly by seed, but returning to the *olivastro.* That these varieties degenerate when propagated by seed is the general assertion among the people here; but regular experiments have never, I think, been carried on, for raising the plant by seed is not advantageous, suckers being of more rapid growth. In this division I would place two varieties, viz.:

α. *Nilane.*—Fruit large, oblong. This occurs in abundance as far west as Cannes, whence along the whole French coast of the Mediterranean, another olive with still larger fruit is cultivated.

β. *Punginaïre.*—This is another variety which we have in this country. It has long willow-like leaves, and produces a very large pointed fruit, chiefly preferred for salting.

The propagation of olive-trees belonging to this third division is effected by cleft-grafting on the stem of the *olivastro* at about six inches above the ground. When the scion has taken, earth is heaped

around it, so as to stimulate it to shoot out roots. After three or four years the little tree begins to fruit, and arrived at an age of about 20 to 25 years, the roots which have been thrown out by the graft send up suckers, any which come from those of the parent *olivastro* being of course extirpated. These suckers, when about two years old, will be strong enough to bear separation from the parent-root and to be planted as independent trees. Such young trees fruit in three to five years after planting. When a sucker is thrown out from a large naked root, it may be surrounded by a heap of earth into which it will strike roots, and in due time may be separated as already explained.

The quality of the oil obtained from the cultivated olive, very much depends on the degree of maturity of the fruit. The riper the latter, the better will be the oil it yields.

Near Marseilles the olives are gathered in October and November, while they are still unripe, and the oil is consequently of very inferior quality. This plan of anticipating the crop is adopted on account of the cold *mistral*, which spoils the olives sometimes completely, freezing them and rendering them nearly worthless for oil. To make the trees thicker in foliage, and thus capable of affording a natural shelter to their fruits, the peasants prune the tops every year after the gathering. In this district of Italy comparatively little pruning is needed, the trees on many properties being allowed to grow quite *au naturel*.

About La Mortola and the adjoining district of Latte, as well as on all the lower slopes of the Riviera, the olives are frequently attacked in the month of July by an insect called *moschino*, which lays its eggs in the berry.* The caterpillar developes itself in August, finding its nourishment in the pulp of the fruit. Olives thus infested drop from the trees while not yet fully ripe, that is, in October, November and December. On the mountains at some distance from the sea, the olives are scarcely at all affected by these insects; the fruits in consequence attain their perfect maturity, the crop being gathered between December and May. The oil yielded by such olives is very clear and of superior flavor, and it commands a high price. In proof of this latter fact, I may remark that the value of the oil produced at Latte contrasted with that of the mountain village of San Michele

* It appears not to lay more than one egg in each,—at least I have never found more than a single caterpillar in an olive.

at the head of the valley is ordinarily as three to four, sometimes even as two to three.—*Pharm. Journ., Lond., Sept.* 7, 1872.

OLEIC ACID AND SOME OF ITS COMBINATIONS.

By Alfred W. Gerrard,

Dispenser and pharmacist, Guy's Hospital.

The introduction of the oleates of mercury and morphia as remedial agents by Mr. J. Marshall, F.R.S., suggested to me the following as capable of preparation, and as having some therapeutic value:

Mr. Frank Clowes, to whom Mr. Marshall referred the chemical question of his paper ("Lancet," May 25th, 1872), mentions that the scales of peroxide of mercury are with difficulty soluble in oleic acid. I find this is not so if the peroxide is previously well levigated. There is no necessity, therefore, for preparing the fresh oxide for solution in the oleic acid.

The oleic acid used in the following preparations is that made at the stearine candle factories, where it occurs as a secondary product. It is contaminated with a variety of impurities, the removal of which is a tedious process. It has the color of olive oil, but a thinner consistence, and a slight tallowy odor; is soluble in all the ordinary fats and oils, alcohol and ether, but insoluble in glycerin. It forms normal and acid salts; the normal salts of the alkalies potash and soda are the soluble soaps of the pharmacopœia.

Professor Miller, in his "Elements of Chemistry," part 3, page 363–4, says: "Pure oleic acid, at temperatures above 57°, forms a colorless limpid oil without taste or smell; it does not redden litmus even when dissolved in alcohol; at 40° it concretes into a hard crystalline mass composed of fine needles. When solid it undergoes no change in the air, but when liquid it absorbs oxygen, rapidly acquiring a brown color, a rancid odor, and an acid reaction upon litmus, its point of solidification gradually becoming lowered until it falls below 0° Fahrenheit."

By reason of the impurities in commercial oleic acid, I find that it cannot be made to unite with the salts used in the following preparations in equivalent proportions; it will, however, form solutions of 20 per cent., and this I have chosen as a suitable strength:—

Oleate of Lead (20 *per cent.*)

Prepared by heating together oxide of lead one part, oleic acid four

parts, until dissolved; on cooling, it forms a semi-transparent tenacious mass somewhat thinner than lead plaister. This is not well adapted for direct application, but requires diluting, and as it mixes readily with ordinary fats and oils, I have adopted the following formula for its exhibition:

Ointment of Oleate of Lead.

Take of

Oleate of Lead (20 per cent.)	2 parts.
Oil of Almonds, ...	1 part.
Prepared Lard, ...	1 "

Mix with a gentle heat.

On cooling, this forms an elegant ointment resembling that of spermaceti.

Oleate of Zinc (20 *per cent.*)

Prepared by heating together oxide of zinc one part, oleic acid four parts, until dissolved. During the process of solution some bubbling takes place with disengagement of watery vapor. It is transparent when melted; on cooling it has the appearance of lead plaister, is hard and friable, and requires to be diluted in the same manner as oleate of lead.

Ointment of Oleate of Zinc.

Take of

Oleate of Zinc (20 per cent.), ...	2 parts.
Oil of Almonds, ...	1 part.
Prepared Lard, ...	1 "

Mix with heat.

This forms an ointment of the ordinary consistence.

Whilst experimenting with the above, I thought that if atropia and aconitina were soluble in oleic acid, they might prove useful preparations. I find they are readily so at ordinary temperatures, whilst the sulphate of atropia is soluble on the application of heat.

I have prepared solutions of the above, which nearly correspond to the ointments of the British Pharmacopœia.

Solution of Oleate of Atropia.

Take of

Atropia, ...	2 grains.
Oleic Acid, ...	98 grains.

Dissolve.

Solution of Oleate of Aconitina.

Take of

Aconitina, ... 2 grains.
Oleic Acid, ... 98 "

On economical grounds there can be no objection to the introduction of the oleates, as large quantities of oleic acid can be obtained at a cheap rate, but the chief consideration is whether they present any advantages as remedial agents beyond those of the same kind already in use. This is a question for the therapeutist, and must be left to the physician and surgeon to decide.

My thanks are due to Mr. A. Higgins, of the Borough, for the oleic acid used in the above experiments.—*Pharm. Journ. and Trans.*, *Aug.* 24, 1872.

ON THE PRESENCE OF ALBUMEN IN NEUTRAL FATS, AND A NEW METHOD OF OBTAINING STEARIC AND PALMITIC ACIDS.*

By W. Lant Carpenter, B.A., B.Sc., F.C.S.

In the International Exhibition of 1871, there were exhibited several specimens of stearic acid, etc., by Prof. J. C. A. Bock, of Copenhagen. It was stated that they were produced by a new process, which possessed very many advantages over any other known method. The author of this paper, having twice visited Copenhagen to study the process, and having extended its application to neutral fats other than tallow, in England, thought that an account of the scientific aspects of it might not be uninteresting to members of the Section. The inventor, Professor and State Councillor, Bock, of Copenhagen, was by profession a medical man, formerly attached to the Danish Court, and a man of high culture and education, though but little known in England. He had been led up to his invention by patient microscopical and chemical study of the properties of neutral fats, and reflection upon the reasons of the disadvantages of methods hitherto practiced. These disadvantages Mr. Carpenter pointed out at some length in his paper. Hitherto, when fats were decomposed by alkali, a considerable excess of alkali above the theoretical quantity was required, unless the operation were conducted under very great pressure, when

* Abstract of a Paper read before the British Association, Brighton Meeting, Section B.

the risk of explosion was great. When they were decomposed by sulphuric (or any other strong) acid, as was usually the case in England, much of the fat was lost by being charred and burnt, and the remainder was so black that it was necessary to distil it to render it good enough in color for manufacturing purposes. The risk of fire, and of explosion in this operation was considerable, and the expense great. Professor Bock had shown that most neutral fats were made up of minute globules of fat, surrounded by albuminous envelopes, which form 1 to 1·5 per cent. of the weight of the fat, and he considered that the excess of alkali, of pressure, or of heat required to decompose fats, was really used in the destruction and removal of these albuminous envelopes, which also attracted to themselves the coloring matters contained in the fat, or produced therein during its decomposition. The existence of the albumen could be demonstrated in the laboratory by dissolving the fat in ether or benzol, and precipitating the solution by water, or by boiling the fat on a *strong* solution of oxalic acid. In both cases the albuminous envelopes collected at the plane of junction of the two liquids. In Professor Bock's process the albuminous envelopes were broken and partly destroyed by the action, for a limited time, and at a given temperature, of a small quantity of strong sulphuric acid. The neutral fat then poured out from the envelopes in a state ready for decomposition by water in open tanks, an operation which required several hours for its complete performance. Its progress was judged of by microscopical examination of the crystals of the fat, or fatty acid, co-formed by slowly cooling a thin layer upon a glass slip. When it was completed, the glycerin, which was dissolved in the water used for the decomposition, was drawn off, purified, and concentrated for sale. The fatty acids, amounting to 94 per cent. of the original fat, were at this stage of a very brown or blackish color. The next operation was to eliminate the albuminous envelopes, and with them most of the coloring matters. This was done by submitting the fatty acids in open tanks to the action of dilute solutions of certain oxidizing agents, by which the black matters were partly oxidized, and their specific gravity greatly increased, so that when the oxidation had proceeded far enough they readily subsided to the bottom of the tank, leaving the fatty acids comparatively good in color.* After two or three washings with di-

* The oxidizing agents that had been employed were—the three strong mineral acids, sulphuric, nitric, and hydrochloric, permanganate and bichromate of potash and hypochlorite of lime.

lute acid and water, the fatty acids were cold pressed and hot pressed in the usual way, and the result was a stearic acid higher in melting-point and greater in quantity than could be produced in any other way, and an oleic acid excellently fitted for the manufacture of soap and other purposes. One of the greatest advantages of the process was, that all operations were conducted in open tanks, boiled with steam not exceeding 35 lbs. pressure.

Mr. Carpenter stated that he was at present engaged in applying this process to palm oil and other vegetable fats, and he illustrated his paper with specimens of the various stages of manufacture.—*Chem. News, Aug.* 23, 1872.

CARBOLIC ACID AND CREASOTE.

By Professor Flückiger, Bern.

A good plan for distinguishing these two substances is as follows :—

	Parts.
Take *a*. Solution of Perchloride of Iron about 1·34 spec. gr. .	1
b. Creasote, that is to say, the liquid to be tested for Creasote, ...	9
c. Alcohol, containing about 85 per cent. of absolute Alcohol, ...	5
d. Water, ...	60

Now $a+b$ mixed assume no peculiar color.

$a+b+c$ furnish a green solution.

$a+b+c+d$ form a turbid mixture of a dingy brownish color, drops of creasote being separated.

On the other hand, in the case of carbolic acid, suppose likewise—

α. The above ferric solution, weighing equally . .	1
β. Carbolic Acid (phenol), ...	9
γ. Spirit of Wine, as above, ...	5
δ. Water, ...	60

Now $\alpha+\beta$ will show a yellowish hue.

$\alpha+\beta+\gamma$ yield a clear brown liquid.

$\alpha+\beta+\gamma+\delta$ display a beautiful permanently blue solution, without separation of carbolic acid, or the few drops sinking down may be redissolved by shaking.

Mr. Th. Morson pointed out* that glycerin is also a good test for the purpose under notice, creasote being not or almost not soluble in that liquid, whereas, as it is well known, carbolic acid readily mixes in all proportions with glycerin. This notice, however, requires, I beg to observe, a slight modification. True creasote, which stands the above test, is perfectly miscible in any proportion with anhydrous or nearly anhydrous glycerin, but it is not so with a somewhat diluted glycerin; a clear solution of creasote and of the same weight of anhydrous glycerin becomes turbid on addition of a little water, whereas a similar solution of carbolic acid may be diluted with water without separation of carbolic acid.†

The blue coloration of carbolic acid, due to perchloride of iron, enables us to discover it when mixed with creasote, but not to prove the presence of creasote in carbolic acid. The latter question, however, seems to me of less practical importance; yet, creasote, if present to some extent, would quickly separate in the above process, $a+b+c+d$, if more water be added. For this purpose the addition of perchloride of iron would be useless.—*Pharm. Journ and Trans., June* 15, 1872.

Varieties.

Ammonium Compound of Cantharidin.—Dr. E. Masing.—Cantharidin combines with ammonium, but this body is a rather unstable compound, and cannot be obtained in solid state except by evaporation of the solution of cantharidin in ammonia *in vacuo*. The composition of this substance is—

$$NH_4O,HO,C_{20}H_{12}O_8$$

In 100 parts—84·85 of cantharidin, and 7·79 of ammonium. The author mentions that other compounds of these bodies exist, and also speaks of an amido combination of cantharidin which is soluble in chloroform.—*Chem. News, Lond., Aug.* 23, 1872, from *Pharm. Zeitsch. f. Russland, No.* 1, 1872.

Nicotina an Antidote to Strychnia.—A case of poisoning by strychnia which was successfully treated with nicotina has been published in the "British Medical Journal" by the Rev. Dr. Houghton, F.R.S., of Trinity College, Dublin. When the treatment commenced, the patient, a lad nineteen years of age, was violently convulsed, his pupils were dilated and his arms and legs were rigid.

*Pharm. Journ., May, 1872, p. 921. Amer. Journ. Pharm., July, 1872, 310.

† The glycerin employed by Mr. Morson was the ordinary distilled glycerin of commerce, and he considers the advantage of the test suggested by him to consist in its simplicity and easy application.—Ed. Pharm. Journ.

The nicotina was administered in drop doses, in whisky-punch, every half hour. After the second dose the paroxysms were less violent; and when he had taken four doses he was much better, and eventually he recovered. The poisoning was caused by the lad picking up and eating an egg which had had strychnia introduced into it, and been placed in a garden for the purpose of poisoning magpies.—*Pharm. Journ., Lond., Aug.* 31, 1872.

Cotton Seed Oil.—There are at present upwards of twenty mills in this country exclusively operated in the manufacture of oil from cotton seed, and over one hundred and fifty thousand tons of seed are used annually. The oil-cake is sent largely to England, where it is used as food for cattle. The oil goes mostly to Bordeaux, Barcelona, and other olive-growing sections of Europe, from whence, after "doctoring," it comes back as "pure olive oil."—*Chicago Pharmacist, Aug.*, 1872, from *Medical Record.*

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the Philadelphia College of Pharmacy was held at the College Hall, September 30th, 1872; 35 members present. In the absence of the President, Wm. Procter, Jr., Vice President, in the Chair.

The minutes of the last meeting were read and approved.

The minutes of the Board of Trustees were read by Wm. C. Bakes, Secretary of the Board, and, on motion, were approved. These minutes inform of the decease of Prof. Edward Parrish, and the election of Prof. William Procter, Jr., to the Chair of Pharmacy, made vacant by the decease of Prof. Parrish.

The following report was read:

To the Philadelphia College of Pharmacy—

The Committee to whom was referred the resolutions of the College of Physicians relative to dispensing external medicines in special bottles and the proper labeling of poisons, etc., respectfully report—

The first resolution is as follows:—

"It is recommended to all druggists to place all external remedies in bottles, not only colored so as to appeal to the eye, but also rough upon one side, so that by the sense of touch no mistake shall be possible even in the dark."

In order to render this plan effective it will be necessary to educate both the public and the dispenser by creating the *habit* of using such bottles of a *particular color and shape* only for external medicines; consequently, the apothecary must *refuse* to *use* such bottles for internal medicines when brought to him for that purpose, and exchange them for others.

This *concert of action*, in the absence of a stringent law, will have to be based on an approval by dispensers of the *means*, and a willingness to *carry them out*. It will also require a liberal use of explanations to the public by word of mouth and by printed circulars, to encourage the recognition of the plan by the people in *home practice*.

But by the letter of the resolution the apothecary *should not use such bottles* for the most deadly poisons *if* for internal use. Physicians prescribe fluid extracts of Ergot, Belladonna and Veratrum Viride, Donovan's and Fowler's So-

lutions, Wine of Opium, Black Drop, Tinctures of Aconite and Nux Vomica, and solutions of Strychnia and Morphia, in poisonous quantities. These would have to be defended from excessive use, according to the second resolution, solely by the labels. The question then naturally arises, if *these* poisons are safely trusted to the protection of the label, why should not poisons and mixtures for external use be equally safe? But the language of

The *second* resolution requires "that all bottles containing poisons should not only be labelled 'POISON,' but should also have another indicating *the most efficient and convenient antidote*."

The *first* part of this resolution is excellent, coming, as it does, from high medical authority, yet the dispenser will often hesitate to label such internal medicine "Poison," unless specially ordered by the prescribing physician, because patients sometimes take alarm, unless the doctor has explained; and he will also have to consider whether the recommendation of the Philadelphia College of Physicians will be his sufficient guarantee in case of any difficulty arising from such a course.

As regards the second part of the 2d resolution, to put the antidotes on the label, the Committee are of the opinion that it would be difficult to carry out, in an intelligent and effective manner, on the small bottles usually required for poisonous medicines, especially where a mixture of poisons is prescribed. It might do some good to *name* the poisonous ingredient and state the strength of the solution, so that in case of poisoning, the first physician arriving would know the character of the agent with which he has to deal.

Having thus given a general statement of the subject, it is proper that the College should know that a difference of sentiment prevails in the Committee as regards the eligibility of the plan of using specially-shaped and colored bottles for external medicines. *One part* believe that the necessary concert of action between the public and the apothecaries, of all grades, would be nearly impossible, and that the necessity of keeping six or seven sizes of *poison bottles* would entail on the apothecary a great increase of trouble and expense, and a constant liability, on the part of those doing a small business, to run out of them, when other bottles would have to be substituted. They believe a *bold black letter poison label*, with the *skull and cross bones* as a symbol added for those who cannot read, is a far safer guard from the evils of accidental poisoning than a meaningless color and shape to the bottle—meaningless to all but the few instructed in its character.

The *other part* favor the adoption of the plan of the resolution, and think that it may be carried out under the joint action of the Colleges of Physicians and of Pharmacy, and that the glass blower would soon provide for all demands. They also advocate enlisting the editors of daily papers to advocate the scheme, and think the public would hail it as an earnest effort, on the part of druggists, to protect the community.

It is for the *College* to decide what course it will pursue. If this body agrees to the resolution regarding bottles, it will become necessary to call a general meeting of all classes of apothecaries to ascertain how the measure will be received, before taking any positive steps with the public.

As the attendance at such general meetings has usually been small, it may prove a better plan to address a circular of queries to every dispenser of medicines in Philadelphia, and request it promptly returned with his approval or disapproval, If a decided majority affirm the resolution plan of using bottles for poison of special color and shape, then the College can take such measures as will fully acquaint the public with the experiment, and ask their earnest support and encouragement.

WILLIAM PROCTER, JR.,
EDWARD PARRISH,
JOSEPH P. REMINGTON,
W. C. BAKES.
} Committee.

On motion, the report was accepted. After some discussion of the subject evidencing that the College was not prepared to adopt the resolutions of the College of Physicians, the following resolution, offered by Joseph P. Remington, was adopted:

Resolved, That the Philadelphia College of Pharmacy does not deem it expedient to adopt the resolutions presented by the College of Physicians,—although they do not desire to prevent any individual member acting on the suggestions of the resolution.

Prof. Maisch read the report of the Committee of the American Pharmaceutical Association, to whom was referred the same subject. The Association deemed it inexpedient to adópt the resolutions of the College of Physicians.

A. B. Taylor stated that the certificates of honorary and corresponding members first made out did not reach their destinations, owing to the failure of the source of conveyance to which he had entrusted them. Wm. C. Bakes reported the action of the Committee appointed to assist the Corresponding Secretary in forwarding the certificates. The certificates were being forwarded by mail, and numerous acknowledgments received.

Prof. Procter, for the Committee on Deceased Members, announced the decease of Prof. Edward Parrish, and stated that the time was so short that a proper biographical notice could not be prepared, and asked that mere time be allowed the Committee to draft the notice, which request was granted.

Prof. Bridges announced the course of lectures for 1872–73, the introductory lecture to be given October 2d, by Professor Maisch.

The semi-annual election for Trustees being ordered, Wm. B. Webb and Jos. P. Remington, acting as tellers, reported the election of the following:

Trustees.—W. H. Pile, M.D., Howard B. French, Wm. McIntyre, S. M. McCollin, C. L. Eberle, Wm. J. Jenks, Wm. C. Bakes, A. B. Taylor.

Committee on Deceased Members.—Wm. Procter, Jr., Chas. Bullock, A. B. Taylor.

On motion, then adjourned.

Chas. Bullock, *Secretary.*

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—At a special meeting of the Board of Trustees, held September 20th, the following obituary was adopted, together with the resolution attached thereto:

The Committee to whom was referred the subject of the decease of Edward Parrish respectfully submit the following

OBITUARY.

The morning papers of September 14th contained a telegram from the Indian Territory to the Secretary of the Interior, announcing the decease of Edward Parrish on the 9th inst., at Fort Sill, Choctaw nation. The electric thrill which sped the sad intelligence over the wires from beyond the Mississippi brought to many hearts in this city of his home grief and distress.

Some were not aware of his absence on so distant a mission; *others*, who knew of his intended journey, had hoped that the change would refresh and

benefit him after the season of trial through which he had recently passed; *a few* of his relatives and friends had heard of his sickness at Fort Sill, but *to all* the message came like a heavy cloud, which for a time obscured all but its own portentous shadow.

To the members of this Board, with whom for years he has been associated in council,—to his brother Professors in the College, now about resuming their courses of lectures,—the announcement comes at a time, and so unexpectedly, that we have found ourselves catching at a ray of hope that the wires had misconstrued their message, and it is only as that faint hope vanishes before the impressive certainty that his form and voice will never again appear in our midst that we begin to realize the loss which we have sustained.

It is not within the premises allotted to your Committee to offer a biographical sketch of the deceased, but a *glance* at his connection with this College will not be without interest at this time. Edward Parrish was a graduate of the class of 1842; in the following year he was elected a member of the College, and in March, 1854, he was elected as its Secretary, and filled that position faithfully until September, 1864, a period of 10½ years.

The decease of Prof. Robt. P. Thomas having made a vacancy in the chair of Materia Medica, he was elected his successor in 1864. In 1866 Prof. Procter resigned the chair of Pharmacy, and was succeeded by Prof. Maisch; after one course of lectures a transfer of chairs was effected (in 1867), by consent of this Board, Prof. Parrish taking the chair of Pharmacy, as more congenial to his previous habits. This position he filled, and was expected to occupy during the session so soon to commence when the electric messenger announced that he would be with us no more!

Prof. Parrish was thoroughly identified with this College, and took a lively interest in its welfare and progress; as a pharmacist he was widely known, and as a writer he had an extended reputation.

The circumstances attending his illness and decease are as yet not sufficiently known to be recorded. He had accepted an appointment by the Government to visit the Indian tribes [placed under the supervision of a Committee of the Society of Friends] located in the Indian Territory, being west of Arkansas and between Kansas and Texas. While in discharge of this duty he fell a victim to the miasmatic fever of that country.

We are not permitted to gather round his mortal remains as an evidence of our respect, but *here*, where he has lived and moved among us, we offer our tribute to his memory, and join with his friends and relatives in sorrow over our mutual loss.

Chas. Bullock, *Ch'n.*,
William Procter, Jr.,
Ambrose Smith.

"*Resolved*, That with unfeigned sorrow this Board has learned of the unexpected decease of their late fellow-member, Edward Parrish, Professor of Pharmacy in the School of this College, and, as a testimony of regard, direct the foregoing report of the Committee to be recorded on the minutes of the Board, and a copy to be furnished to the family of the deceased.

At an adjourned meeting, held September 24th, Professor William Procter, Jr., to whom the chair of Pharmacy rendered vacant by the decease of Professor Edward Parrish had been offered, accepted it, and was unanimously re-elected to the position, which in 1846 was created as an experiment, and which owes its success and recognized usefulness mainly to his unremitting industry and untiring exertions while he labored as Professor of Pharmacy during a period of twenty consecutive years, until in 1866 the Board had reluctantly accepted his resignation.

The Alumni Association of the Philadelphia College of Pharmacy, on hearing of the death of Professor Edward Parrish, called a meeting of the Graduates, and on September 19th adopted the following:

At a meeting of the Alumni Association and graduates of the Philadelphia College of Pharmacy, held September 17, 1872, the following memorial, expressive of our sad bereavement in the death of Professor Edward Parrish, was directed to be presented to the family of our beloved friend and teacher, towards whom our hearts are drawn in tender sympathy, who have been so suddenly bereft of their life-long companion and friend, and are stricken with a grief too full for utterance and almost overwhelming. We feel that there is not one here in this meeting, of those who have been privileged to sit under his instruction, who can but bear testimony to the great and almost irreparable loss which the profession and general community have sustained, and to the personal sense of a vacancy in the circle of our truest and dearest friends.

To this community, in which he has so long labored, and maintained an untarnished reputation, where indelibly are written the marks of his earnestness, integrity, philanthropy and public spirit, his memory will long be green.

The graduates and students of the College will sorely miss their genial, warm-hearted and fatherly teacher, who was so approachable, and so readily entered into sympathy with them in the difficulties that beset their paths.

The profession over this broad land will acknowledge and deplore his loss, and wherever his professional merit has been recognized, or his name introduced, all must unite in regretting the dispensation that has removed him thus early from the field of his usefulness.

But while we thus express our feeling of a common sorrow, we have the great consolation of all Christian hearts to know that he was calmly prepared for and anticipated the sad event, that he was surrounded by those who, while strangers, ministered tenderly to the necessities of his last illness, and that, soothed and sustained by an unfaltering trust, he approached his God "like one that draws the drapery of his couch about him, and lies down to pleasant dreams."

Mississippi State Pharmaceutical Association.—We have received a pamphlet containing the proceedings at the second annual meeting of this association, held at Holly Springs, Miss., April 5th last. The officers are: Matthew F. Ash, of Jackson, President; James F. Jones, of Macon, Vice-President; John T. Buck, of Jackson, Recording Secretary; Hampden Osborne, of Columbus, Corresponding Secretary; G. M. Scott, of Okalona, Treasurer. The third annual meeting will be held at Vicksburg on the first Wednesday in April, 1873.

California College of Pharmacy.—The following circular letter shows that our friends on the Pacific coast are determined not only to offer educational facilities to the young pharmacists, but also that they mean to establish a College upon a sound financial basis:

San Francisco, August 20th, 1872.

To the Apothecaries of the Pacific Coast:

At a regular meeting of the California Pharmaceutical Society, held July 10th, 1872, it was resolved, by a unanimous vote of the members, to take measures for the establishment of a College of Pharmacy.

While actual *Counter experience* is indispensable for the proper qualification of the pharmacist in a business point of view, it utterly fails in that portion which alone raises his calling from the level of a trade to the dignity of a pro-

fession. While the older members of our profession have enjoyed the advantages of scientific teaching available in the older portions of the world, the young men who have embraced it on this coast have been obliged to struggle along as best they might, in too many instances, perhaps, meeting with such discouragement as to compel them to cease all attempts at self education, and to be content with the mere *routine* knowledge attained by observation.

To remedy this state of affairs, and to elevate the standard of our profession, is the aim and desire of the Society and the object of the above resolution, in pursuance of which the Society, at the same meeting, appointed Messrs. John Calvert, J. G. Steele, W. T. Wenzell, Wm. Simpson and Wm. E. Mayhew (the Board of Directors of the Society) as a Committee to move in the matter of the establishment of a College of Pharmacy, and authorized them to add to their number if deemed advisable. In accordance with this provision, the Board of Directors invited John A. Bauer, Wm. Geary, J. W. Forbes, Wm. Searby, B. B. Thayer and Ch. S. Biedermann to act with them on the Committee.

On the 7th of August, 1872, the California College of Pharmacy was incorporated, with a capital stock of $100,000, divided into 1000 shares of $100 each; its duration to be 50 years, and location in the City and County of San Francisco, and with the following officers and trustees: William T. Wenzell, President; J. Winchell Forbes, Secretary; J. G. Steele, Treasurer; John Calvert, Wm. Simpson and W. E. Mayhew, who are authorized to solicit subscriptions for the capital stock.

It has been determined by the management to grant a scholarship to the holder of each share of the capital stock, which shall cover all fees attendant upon a course of two seasons, except that of graduation, and which shall be available at any time within one year from the date of issue of said share.

The Faculty of the College will be composed of actual pharmacists, and the practical as well as the theoretical portion of the Science of Pharmacy will be thoroughly and experimentally demonstrated; the every-day counter manipulations sharing equal attention with the more abstruse details of the Laboratory, as it is the aim of the management to qualify all who avail themselves of the advantages offered, to cope with any and every emergency that may arise in the transaction of the business of legitimate Pharmacy. The course proposed, to commence on the 1st of October, includes Materia Medica, Pharmacy, Chemistry and Botany. In due time a prospectus will be issued. Your co-operation is respectfully solicited.

J. W. Forbes, *Secretary*.

British Pharmaceutical Conference.—The ninth annual meeting of this body, which commenced at the Royal Pavilion, Brighton, August 13th last, has been a very successful one, quite a number of prominent pharmacists of Great Britain being present and taking part in the discussions. Mr. H. B. Brady, the President, delivered an excellent address, a considerable portion of which was devoted to pharmaceutical education, a subject which claimed much of the attention of the Conference, papers on this theme being read by Prof. Attfield, Mr. Julius Schweitzer and Mr. Barnard S. Proctor, calling forth an animated discussion which in a great measure was devoted to the consideration of the proper measures requisite for securing the thorough education of the young pharmacists residing in smaller places. In regard to it the "Pharmaceutical Journal" says: "But nothing is more remarkable in this discussion than that, with one object in view, scarcely two are agreed as to the best mode of attaining it." As was truly said by one speaker, "*Quot homines tot opiniones.*"

Other papers read at this meeting were: Pharmaceutical Ethics, by S. R. Atkins; Calabrian Manna, by Daniel Hanbury; Occurrence of Manganese in Certain Drugs, by Prof. F. A. Flückiger; Succus scapi taraxaci, by H. Barton; Pill Coatings, by T. Haffenden; Tinctures, by Messrs. Stoddart and Tucker; Guaiacol, by J. Williams; Laboratory Notes, by Edward Smith; Kamala, by T. B. Groves; New Derivatives from Morphia and Codeia, by Prof. Wright; Orris Root, by Henry Groves; Tincture of Perchloride of Iron, by T. Hustwick; Koegood, a New Drug from South Africa, by G. A. Keyworth; Researches on the Constituents of Aloes, by Dr. Tilden and Mr. Rammell; Notes on Green Extracts, by Rich. W. Giles; A Cheap Disinfectant, by Edward C. C. Stanford.

The town of Bradford, in Yorkshire, was fixed upon as the place of meeting for the year 1873.

Dr. Edward R. Squibb of Brooklyn, Professors G. F. H. Markoe of Boston, and E. S. Wayne of Cincinnati, Dr. Carl Schacht of Berlin, and Professor L. A. Buchner of Munich, were elected honorary members; Prof. Markoe and Wayne were present at the meeting.

The officers for the current year are: President, H. B. Brady; Vice-Presidents, H. Deane, R. Bentley, D. Hanbury, W. W. Stoddart, T. H. Hills, J. Williams, R. Reynolds and F. M. Rimmington; Treasurer, G. F. Schacht; General Secretaries, Prof. Attfield and F. Baden Benger.

On the evening of the first day, the members, with many guests, assembled in the banqueting room of the Royal Pavilion, where they were entertained at supper by Brighton local members.

Pharmaceutical Society of Great Britain.—At a meeting of the Council, held September 4th, a letter was received from a lady, asking if ladies were admitted to the lectures of the School of Pharmacy and to the laboratory. The Secretary stated that some years ago Miss (now Dr.) Garrett applied for admission to the lectures, and, the professors seeing no objection, she paid the fees and attended the course. On the matter, however, being brought to the attention of the Council, some members thought such a proceeding was irregular, and a resolution was passed prohibiting the admission of ladies to the lectures in future.

Mr. Hampson said he was very glad such a letter had been received, and gave notice that at the next Council meeting he would bring forward a resolution for rescinding the one referred to by the Secretary.

Pharmaceutical Society of Paris.—The meeting of July 3d was opened with some remarks by Mr. Marais, concerning the statement made by Mr. Vuafiart* in regard to orange-flower water. The speaker said that in 1863 the commission charged with studying the distilled waters in connection with the revision of the Codex, found, by numerous and carefully performed experiments, that orange flower water distilled with steam presents many advantages over that distilled over the open fire, and that its conservation is as easy as certain.

* See American Journal of Pharmacy, 1872, Sept., 426.

A sample of red cinchona from Bogota, presented by Mr. Stan. Martin, was referred to Mr. Planchon.

Mr. Méhu presented a sample of the acid tartrate of protoxide of iron, which is not altered by exposure to the air or light, and is adapted to the preparation of the double salt of sesquioxide of iron and ammonia.

Mr. Bourgoin reported his researches on squill, and reviewed the investigations of Vogel, Tilloy and Marais.

Mr. Jungfleisch had obtained racemic acid artificially, in considerable quantity, by heating in a sealed tube ordinary tartaric acid to 175° C.; if 2 equivalents of water are added to the tube, the yield will be as high as 80 per cent.

Mr. Boudet reported on the proceedings of the Academy of Medicine and the proposed investigation into the effects of certain compounds which, like atropia and digitalin, may now be obtained in a purer state than heretofore.

Mr. Stan. Martin spoke about a very simple process for preparing dry albumen. Mr. Boudet said that by an analogous process fresh meat was reduced to a dry powder, which, with water, yields a very nourishing food.

Editorial Department.

The Twentieth Meeting of the American Pharmaceutical Association, of which an account is given in another part of this Journal, has been a very successful one in point of attendance, though not quite as successful in regard to the number of scientific papers presented as has been its immediate predecessor. Excepting the St. Louis meeting, it will, however, favorably compare in this respect with all others and be found somewhat wanting in comparison to a few only. The practice inaugurated, of late years, of travelling in company to the place of meeting, has met with so much favor and is productive of so much interest, that we would recommend our Western friends to take this matter early into consideration, so that the permanent Secretary may, in his official capacity, aid them in securing a suitable reduction of fare Three years ago, on the way to Chicago, a number of members united, and, passing over the Erie railroad, spent a pleasant day at Niagara Falls. Last year's visit to Pittsburg will long be remembered by those members who, westward bound, stopped at the Iron City and received the attentions of the pharmacists of Allegheny County. On the eastward trip quite a number had united to visit the Mammoth Cave in Kentucky, and on a Sunday morning offered their devotions in the subterraneous cavern of that interesting locality. This year, a party of twenty-two, including ladies, travelled from Harrisburg by way of the Northern Central Railroad to Watkins, stopped there at the beautifully situated Glen Mountain House and inspected the romantic glen, which has only been opened to visitors a few years. The trip over Seneka lake and the kind attention shown at Rochester by Mr. A. S. Lane, form pleasant reminiscences of this trip. Sunday, September 1st, united the majority of the Eastern members and their ladies, to the number of sixty, at Niagara Falls; and though many had visited this wonder of our lake region several times, who would not gladly spend another Sunday in such a company on such a spot? The fatigues inci-

dental to travelling hundreds of miles, vanish under such circumstances, and nothing remains but the pleasure and the profit we derive from the surroundings and the animated company in which we move, until we return to our home, when a day or two of rest will be welcome to us.

Need we say anything of Cleveland, the point to which we were bound? The Association went there a stranger, none of its living members had ever attended a meeting; but true hospitality made every visitor soon feel at home there, and we should not be surprised if the results of this meeting should far surpass the anticipations.

Let it be likewise next year, in Richmond, Va.

Exhibition at the Last Meeting of the American Pharmaceutical Association.—Crude drugs were exhibited by McKesson & Robbins (herbs, seeds, fruits and rhubarb), Lazell, Marsh & Gardiner (rhubarb, ipecac, jalap), Powers & Weightman (cinchona barks), Strong & Armstrong (handsome manna, ammoniac, tragacanth, cinnamon, oils, &c.), J. M. Maisch (Chinese blistering bugs), Benton, Myers & Canfield (crude brimstone from Utah), H. F. Reum (true Russian rhubarb), B. O. & G. C. Wilson (pressed and loose herbs, &c.), Cheney, Myrick, Hobbs, & Co. (American drugs), Dr. E. R. Squibb (Chinese rhubarb), J. Milhau's Sons (natural mineral waters); a large variety of essential oils by various exhibitors. Chemicals were on exhibition from Chas. T. White & Co., Powers & Weightman, J. Milhau's Sons and others. A number of various apparatus and appliances were exhibited by H. C. Gaylord, McKesson & Robbins, Hance Bros. & White, J. R. Mercein, Jer. Quinlan, Dr. W. H. Pile, F. H. Crawley, Whitall, Tatum & Co. Various manufacturers exhibited sugar-coated pills, fluid extracts, elixirs, &c. Different fancy goods were exhibited by Waters & Ricksecker, wines of their own manufacture by Burbank and Gallagher, native wines also by Benton, Myers & Canfield and Good & Roof.

Detection of Sulphuric Acid in Vinegar.—In the April number of this Journal we published a paper on this subject, by Mr. James T. King, which has been criticised by Dr. P. H. Vander Weyde, in the following communication to the *Scientific American* of August 31st:

"The method to detect the sulphuric acid cheat in vinegar, given by the *American Journal of Pharmacy* and republished in your paper on page 120, is the most glaring piece of stupidity which I have had the misfortune to encounter for a long time, and the editors of the *American Journal of Pharmacy* should know better than to publish such nonsense. You are perfectly right in wishing that some of your readers might suggest an easier method for this purpose.

"The addition of the alcohol is not made in order to take up 'the free sulphuric acid to the exclusion of the sulphates,' as the druggist's circular states, but to destroy the acetic acid by changing it into acetic ether; the mixture of acetic acid, alcohol, and sulphuric acid, and afterwards evaporating or distilling the same, is exactly the regular method for making the volatile acetic ether, which will be the vapor or the product of the distillation; in this way the acetic acid is disposed of with the alcohol, and the free sulphuric acid and the sulphates are left; pure vinegar must neither contain the one nor the other, and if adulterated with sulphuric acid, it will mostly contain traces of sulphates also. The addition of a solution of chloride of barium will, in any vinegar,

without previous unnecessary preparation, at once demonstrate their existence by a white heavy precipitate, which is sulphate of barytes or heavy spar; while pure vinegar will not show this precipitate, simply because acetate of baryta is soluble in water, and not insoluble, as the sulphate. The advice of preparatory treatment, therefore, with alcohol, heating, etc., is absolutely unnecessary, and simply a specimen of as gross an ignorance as is the attempt at explanation.

"The sole purpose of my dilating upon this matter is for the amount of chemical instruction it conveys.

"Now the simple test of detecting sulphuric acid in vinegar is this: Make a solution of chloride of barium, pour a little in the suspected vinegar; if it remains clear there is no adulteration with sulphuric acid; if a white cloud shows itself, there is adulteration.

"Even the quantity of the adulteration may be determined in this way; when gradually so much chloride of barium has been added to, say, one pint of vinegar till no more precipitate is formed, and this precipitate is then collected by filtration and dried, every three parts of the precipitate will indicate very nearly one part of sulphuric acid adulteration."

This remarkable criticism has received due attention by communications, to the same paper, of September 14, written by Messrs. Charles L. R. Sayre, of Washington, D. C., Francis Schleicher, of Hoboken, and H. M. Wilder, of Philadelphia. These gentlemen reminded Dr. Vander Weyde that vinegar is apt to contain sulphates, for the removal of which Mr. King proposes alcohol, the clear filtrate containing the sulphuric acid.

The amount of acetic ether formed by the process, as given by Mr. King, can only be minute, since a *gentle heat* merely is directed for the evaporation of the alcohol. The only reaction which might interfere with the detection of sulphuric acid by the process given, is the formation of sulphovinic acid, which cannot be recognized by chloride of barium; but since at ordinary temperature this acid is formed very slowly, and since even at an elevated temperature and with an excess of alcohol it is extremely difficult to combine *all* the sulphuric acid in the manner indicated, we did not feel justified in making any comments on manipulations which have been so correctly described. Notwithstanding the rash strictures above referred to, we regard Mr. King's method as the easiest and *most correct* process yet suggested for the purpose.

Apothecaries' Apprentices.—The *Medical Press and Circular* relates a judgment wherein it was ruled that an apothecary is bound to provide his apprentices with proper opportunity and leisure for study, books wherewith to learn and personal instruction.

The Lecture Season has approached, and from the information received there is a fair prospect of larger classes than heretofore in the different Colleges of Pharmacy. Pharmaceutical education has made rapid progress in the United States of late years, not merely by the establishment of new Colleges in the larger cities, but mainly through the evident aim of these institutions to furnish young pharmacists with ample opportunities of acquiring the knowledge and accomplishments requisite for the successful pursuit of pharmacy. In several places of the present number we report on these evidences of progress, which is the more gratifying as it emanates from causes inherent to the natural

development of our profession, and the awakening interest of the public, in many parts of our country, into pharmaceutical affairs demonstrates that the times have long since passed when manual accomplishments alone could be considered sufficient evidence of pharmaceutical skill. The young pharmacist of the present day has no reason to complain of a want of opportunities to acquire the theoretical knowledge so essential nowadays for business success.

Fraudulent Quinia.—On pages 92 and 333 of our last volume, the fraud of substituting sulphate of quinia by muriate of cinchonia was exposed, and it is likely that the publicity given has rendered the perpetrator of the fraud more cautious than at first. We are informed from Chicago that the same article has made its appearance there also, under French disguise, and our readers generally are warned against purchasing quinia without carefully examining it, unless it be obtained from the manufacturers direct. Who has committed that fraud? and who deals in that article?

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Cooley's Cyclopædia of Practical Receipts and Collateral Information in the Arts, Manufactures, Professions and Trades, including Medicine, Pharmacy and Domestic Economy; designed as a Comprehensive Supplement to the Pharmacopœia, and General Book of Reference for the Manufacturer, Tradesman, Amateur, and Heads of Families. Fifth edition. Revised and partly re-written by Richard V. Tuson, F.C.S., Professor of Chemistry in the Royal Veterinary College, &c. Philadelphia: Lindsay & Blakiston. 1872. 8vo, 1201 pages, double column. Price, bound in cloth, $12.

That this work is a useful one may be judged from the editions through which it has passed; that fault may be found with it may be judged from the title and the size of the work. Perhaps its scope is too extended for the size, or its size too small for its scope, as indicated in the title, and the desire not to extend it too much necessitated that some of the less important articles had to be left out in order to make room for the new discoveries. This pruning does not, as far as we have observed, detract from the value of the work as a book of reference; but occasionally a reference has been retained which ought to have been dropped, like others allied to it. Thus we find, on page 8, *Acerate Syn. Aceras. See Aceric acid.* The latter, however, is not found either under the heads of Acid, Acer, or Maple.

The references retained are occasionally incorrect. We find, on page 324, *Cheltenham Salts. See Salts.* But the heading, *Salts, Cheltenham,* of the older editions has been dropped, and reference ought to have been made directly to *Waters, mineral,* p. 1168.

Articles intended to have been introduced have, perhaps, sometimes been inadvertently omitted, like *Adeps benzoatus,* on page 29, for which merely the synonym *benzoated lard* is given; but the process of benzoinating is neither described under the letter B nor L.

Occasionally we miss processes for the preparation of compounds, as for anhydrous acetic acid (p. 16), and for polygalic acid (p. 1036),—and descriptions

of crude articles or preparations which appear to possess the same importance as others, retained or introduced. Acetal, acetone, bistorta, calabar bean, datiscin, toxicodendron, American wormseed, are examples. The revisor's object was to retain all subjects of practical interest, and expunge those mostly possessing a purely scientific interest.

In examining the articles admitted in the present edition, we have discovered but few errors or oversights. The process given for what the eclectics persist in calling hydrastin, yields muriate of berberina, and the product is free from hydrastia (page 608). On page 1018, the description given of Russian or Turkey rhubarb is apt to mislead to the belief as if this kind was still a commercial commodity, while it has been out of commerce for the last ten years. For colchicia (p. 352) the better process with tannin should have been given.

In some instances we observe omissions of important facts, like the chemical and physiological similarity of daturia and atropia (p. 385), the identity of sanguinarina and chelerythrina (p. 1029).

Considering, however, that this work is intended to be a "cyclopedia of practical receipts and collateral information," we cheerfully recommend it, as containing such a large amount of carefully selected formulas, processes, and other valuable information on innumerable new and old subjects, that every practical man is likely to find in it something, probably much, in which he feels specially interested. We should mention yet that the new notation has been adopted in all chemical formulas.

The garb in which this work appears is creditable to the publishers; the paper is good, and the type, though small, sharp and clear.

Pharmacopœa Helvetica. Editio altera. Scaphusiæ: ex officina Brodtmanniana, 1872.

The first edition of this Pharmacopœia was noticed in the "American Journal of Pharmacy" 1867, p. 207, &c. In the present edition, which has appeared within seven years after the former, the Pharmacopœia has been completely remodeled and cut down, by omitting a large number of complex Galenical preparations, so that the whole work is now printed upon 196 pages.

The language employed is the Latin, to the exclusion even of the synonyms in the vernacular. The simple drugs have been introduced, their derivation is given, but no description is attempted, instead of which merely the most important characters are mentioned by which the drug may be distinguished from other similar ones, or adulterations detected. A few examples will render this clear:

Balsamum Peruvianum. Liquor spissiusculus, rufus vel e nigro fuscus, quem Myroxylon Pereiræ *Klotzsch* (M. sonsonatense autor.) leviter adusto cortice exsudat.—In acido acetico crystallisato, alcohole amylico, acetono anhydro et spiritu alcoholisato solubile sit, minima ex parte in benzolo.

Folia Digitalis. Folia Digitalis purpureæ L. Tempore florescendi e planta sponte crescente colligenda.—Subtus præcipue pilis simplicibus et mollibus non vero stellatis vel ramosis tomentosa aut pubescentia sint.—Ne ultra annum serventur.

Semen Myristicæ (Synon: Nux moschata). Myristicæ fragrantis Houttuyn (M. moschatæ Thunbg.) nucleus seminis.

The fixed and volatile oils have received particular attention, their behavior to strong alcohol and bisulphide of carbon is stated, and the reactions with sulphuric and nitric acids and a number of other reagents are well described.

The Galenical preparations are usually made to represent 5, 10 or 20 per ct. of the drugs. Where liquids are employed, the drugs are exhausted by maceration for a week and then expressed; the liquid retained in the press-cake is not made up by the addition of more menstruum.

Acetum Scillæ contains 10 per cent. of alcohol. The tinctures are mostly made with Spiritus dilutus, which contains 69 to 70 volumetric per cent. of anhydrous alcohol. Tinctura aloes, asæ fœtidæ, benzoës, cantharidum, castorei, guaiaci and myrrhæ are made with alcohol sp. gr. 0·834. All the spirits are distilled, with the exception of Spiritus camphoratus, saponatus and sinapis, the latter being a solution of 1 p. essential oil of mustard in 49 alcohol.

The chemicals are merely described in their physical and chemical characters, and tests for their purity or standard quality have been given. Formulas are introduced only in exceptional cases, where different processes will lead to different results; for instance, for Bismutum nitricum, Calcium phosphoricum, Ferrum phosphoricum, Ferrum sulfuricum (precipitated by alcohol), Plumbum jodatum (precipitated from boiling solutions), &c.

The tables which follow the text are the same as in the first edition and mentioned on page 207 of our volume for 1867. In addition thereto, a table has been introduced, giving the preparation of the normal solutions of oxalic acid and caustic soda, for alkalimetric and acidimetric purposes; also a table giving the specific gravity, at 15° C., of mixtures of alcohol and water as ascertained by Von Baumhauer. The latter table differs materially from the one published on page 349 of this Journal, for 1860.

The nomenclature adopted is similar to that in use in Germany and Eastern Europe, and is consistently carried out according to modern chemical principles, wherever significant technical terms (alumen, borax, &c.) could not be employed; thus we have Ammon*ium* carbonicum, Calc*ium* phosphoricum, Kal*ium* chloricum, Natr*ium* nitricum, &c.

The articles are treated of in alphabetical order, and no separation, as in our pharmacopœia, into a list of materia medica and preparations is attempted, whereby the convenience of consulting the work is greatly enhanced.

The work speaks well for the patient labors of the Swiss Pharmaceutical Society, and its appearance throughout is creditable to the publishers.

The Journal of the Gynæcological Society of Boston. A Monthly Journal devoted to the advancement of the knowledge of the diseases of women. Edited by Winslow Lewis, M.D., Horatio R. Storer, M.D., George H. Bixley, M.D. Vol. vi, January to July, 1872. Boston: James Campbell, Publisher. 8vo, pp. 480. Price, $2 50, in cloth.

We have received Volume vi of this valuable Journal, which, like the preceding volumes, may be obtained, handsomely bound in cloth, at the publication price.

Contributions to the fauna of the New York Croton Water. Microscopical Observations during the years 1870–71. By Charles F. Gissler. With several wood-cuts and five plates, containing forty fine engravings on stone. New York: Charles Vogt, Steam Printer, 1872.

An interesting pamphlet of 22 pages, containing the observations made by the author on the animalcules occurring in the New York Croton Water. The illustrations are handsomely executed.

New Treatment of Venereal Diseases and of Ulcerative Syphilitic Affections by Iodoform. Translated from the French of Dr. A. A. Izard, by Howard F. Damon, M.D. Boston: James Campbell, 1872. 12mo, pp. 73. Price, 50 cents.

The essay relates the author's experience of the salutary results obtained by the topical application of iodoform in various forms of the classes of diseases mentioned in the title. Iodoform acts also as a local anæsthetic, but its employment should never dispense with internal treatment.

Systematische Zusammenstellung deutscher Schriften aus dem Gesammtgebiete der Medicin, Pharmacie, Pharmacologie und Pharmacognosie. Herausgegeben von E. Steiger, New York, 1872.

A systematic catalogue of German publications from the departments of medicine, pharmacy, pharmacology and pharmacognosy. 12mo, pp. 82.

This valuable catalogue contains all the important publications in the above branches which have appeared in Germany during the last 15 years, conveniently classified and with the prices attached. The only improvement that we could suggest is to add, in a future edition, the date of the last publication of the different works.

Transactions of the Medical Society of the State of Pennsylvania at its Twenty-third Annual Session, held at Franklin, Pa., June, 1872. Volume ix, Part 1. Published by the Society. Philadelphia: Collins, Printer, 1872. 8vo, pp. 263.

Besides the minutes, the volume contains the President's address, an address in obstetrics by W. L. Atlee, M.D., and the reports of the various county medical societies.

Young Folks' Rural. A rural and literary monthly Journal for young people of country and city. Published by H. N. F. Lewis, Chicago. Price, $1.50 per year; $1 in clubs of four or more.

An interesting monthly of sixteen pages and 64 columns. The number before us contains numerous articles on various topics, such as appear to be well adapted not only for the amusement, but likewise for the instruction, of the young.

OBITUARY.

Professor Edward Parrish, of Philadelphia, died at Fort Sill, Indian Territory, on the 9th of September, in the 52d year of his age. We refer to the obituary notices on page 469 of the present number, and shall publish a biographical sketch of the deceased in a future issue.

VOL. XLIV.] AMERICAN [NO. XI.

JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] NOVEMBER, 1872. [VOL. II, NO. XI.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance*. Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

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NOTICE.

The next Pharmaceutical Meeting will be held at the College Hall, on TUESDAY, the 19th of November, at 3½ o clock, P. M.

Members, students and others interested in Pharmacy are invited to attend, and to bring drugs, preparations and other objects of interest.

CLEMMONS PARRISH, *Registrar*.

NOTICE.

A large number of young men have entered their names on the Register of the College for situations during their attendance u[illegible] tures. Most of them have had from three to five years' experience in good [illegible] ares [illegible] us parts of the country, and are willing to accept a moderate salary.

W[illegible]LLIAM C. BAKES, *Registrar*,
1100 Arch St.

WANTED.

The Committee offer the publication price in money for the 4th number of the 1st volume, published January, 1830; for the complete 2d volume, commencing April, 1830; for the complete 3d volume (1831); for the complete 5th volume (1833); and for the complete 7th volume, commencing April, 1835. They will also be glad to receive and pay for the January and July numbers of 1857; for the March number, 1856; for the 37th volume (1865); and for the January numbers for 1866, 1867 and 1869, and the July and September number, 1870.

Address H. H. WOLLE, 145 N. Tenth Street.

NOTICE BY THE PUBLISHING COMMITTEE.

THE AMERICAN JOURNAL OF PHARMACY has now completed its forty-third volume. Believing that the work embodies a large amount of information extremely valuable to Apothecaries, Druggists and Physicians—comprehending, in fact, a faithful record of the development of pharmaceutical science and inventions during the period of its issue, now forty-two years, both in Europe and America, the Committee consider that no pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many which, though not officinal, are more or les valuable and in use To render all this more available, a GENERAL INDEX is in preparation which will be published if a sufficient number of Subscribers is obtained in the course of six months.

On an examination of the stock of the Journal, the Committee find that eight of the volumes are wholly or partially out of print, viz., 1, 2, 3 and 5 of the First Series, and Vol. 1 of the Second Series, and the 4th, 5th and 13th vols. of the Third Series. All the remaining volumes, thirty-four in number, they can supply on demand.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the twenty-fourth inclusive, at the reduced price of $1-50 each, nett.

The volumes 25 to 43 inclusive, except the 28th, 29th, 37th and 40th volumes, are held at the publishing price, $3.00, unless a full set is taken, in which case they will be supplied at $2.50 per volume.

WILLIAM PROCTER, JR., JAMES T. SHINN,
PROF. JOHN M. MAISCH, THOMAS S. WIEGAND,
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☞ Foreign Exchanges sent to Mr. C. J. Skeet, Bookseller, 10 King William St., Charing Cross, London, W. C., directed "for the American Journal of Pharmacy, John Pennington & Son, Philadelphia U. S.," will reach us.

THE

AMERICAN JOURNAL OF PHARMACY.

NOVEMBER, 1872.

ON A NEW APPLICATION OF TUBE HYDROMETERS.

By Wilson H. Pile, M. D.

In an article read before the American Pharmaceutical Association in Baltimore, 1870, I endeavored to render intelligible a new method by which the relation between the degrees of Beaumé's hydrometer and specific gravity could be easily determined; and, as the method there pointed out is intimately connected with the present subject, I will briefly recapitulate the main points.

A plain cylindrical tube of thin glass, closed at its lower end, is to be immersed in pure water, at a temperature of 60° F., and then loaded by pouring in shot or mercury until it sinks about $\frac{3}{8}$ of its length in the water, the point to which the surface of the water rises being then marked on the tube. If now that part of the tube which was immersed in the water be divided into 145 parts, and these parts numbered from the top downwards, the tube will represent a Beaumé's hydrometer for liquids heavier than water, and by floating it in any liquid of greater density than water, its degree will be seen on the tube at the surface of the liquid.

These degrees can be marked on paper, and the paper inserted in the tube and pushed down to the bottom, the upper mark or zero being exactly opposite the mark which had been previously made on the tube.

We will now proceed to show a new application of these tube hydrometers in determining densities.

Having immersed a tube, closed at the lower end as before, in water, we pour water into the tube until it sinks about ⅞ of its length. It should float upright. We are now to mark the surface of the water in which the tube floats, and also the surface of the water within the tube. The tube below this latter mark must then be divided into 145 parts, either by etching on the glass or, what is more practical, by drawing a scale on paper, numbering the degrees from the top (0°) downwards. In ascertaining the density of any liquid heavier than water the tube must be emptied and dried by rinsing with alcohol and drawing air through it by means of a long tube, then immersed in water of 60° F., and the liquid to be tried poured in until the tube sinks to the upper mark. It can then be taken out, and the degree of density shown on the tube, if it be etched, or else by holding it on the paper scale in its proper position.

Our illustrations have been thus far for liquids heavier than water; for those lighter than water the tubes or scales require a different division. Unfortunately, Beaumé's method of dividing his hydrometers rendered the degrees for those of light liquids larger than those for heavy liquids, and by comparison we find they are in the ratio of 145 to 140. In order, therefore, to make a scale for light liquids, we divide the space below the surface of the water within the tube into 140 parts instead of 145 parts, as at first; the degrees are then continued upwards 70 or more parts. These divisions are numbered at the water point 10° (another peculiarity of Beaumé's scale), and running upwards so high as desired. The scale below the water point need not be marked, as it can be only used for liquids lighter than water.

The tube is used for all liquids in the same manner, namely, by pouring into it the liquid to be tried until it sinks in water down to the mark made at first on the tube; then by holding it against the paper scale marked as just described. The surface of the liquid will indicate its proper degree of density.

An advantage which the tube when used in this manner possesses, is the small quantity of liquid necessary, as the tube can be made quite small in diameter, and by increasing its length the degrees are rendered larger, and thus greater accuracy is obtained. It may also be employed in ascertaining the density of extremely heavy liquids, where no hydrometer could be found of service.

AQUEOUS FLUID EXTRACT OF RHUBARB.

By George Bille.

From an Inaugural Essay.

The complaints of several physicians that their patients had a decided aversion to mixtures containing the officinal fluid extract of rhubarb, owing to their unsightliness and disagreeable taste, induced me to make an attempt to find a method of preparing a liquid preparation of rhubarb which does not possess the disagreeable property of being precipitated on addition to water or aqueous liquids.

Several small experiments with an aqueous infusion led me to think that I had found what I was looking for in an aqueous fluid extract.

I reduced sixteen troyounces of rhubarb to a coarse powder (ten meshes to the inch), moistened with eight fluidounces of cold water, and introduced it into a properly prepared cylindrical percolator, packing it gently. I exhausted the root with cold water, and evaporated the percolate, by means of a water-bath, to twelve fluidounces; then I added four fluidounces of glycerin, making the whole measure a pint. This fluid extract has a beautiful dark reddish-brown color, and to all appearance keeps well, having been kept in the store for four months without depositing anything. It has a less disagreeable taste than the officinal fluid extract, and is sufficiently active, one fluid-drachm having produced four evacuations in six hours.

I had now to determine whether the water had extracted all the virtues of the root. I poured alcohol (specific gravity, ·838) on the residue in the percolator, displaced the remaining water (which was thrown away), and percolated till the drops came through with a slight yellow color (three quarts of percolate); the percolation was continued with two quarts of diluted alcohol, and finally with water, till two quarts more of percolate were obtained, making five quarts of alcoholic percolate in all. This was divided into two portions of two and a half quarts each.

One portion was evaporated, by means of a water-bath, to one pint; eight troyounces of sugar were added, and the evaporation continued until twelve fluidounces were left. Drachm and half-ounce doses proving ineffectual, three fluidounces were taken at once; the result was the same—no evacuation.

From the second portion of alcoholic percolate (2½ quarts) aporetin,

phæoretin, chrysophanic acid and erythroretin were tried, to be prepared by the directions of Schlossberger and Döpping, as detailed in W. and B. Dispensatory of 1858, page 647.

The alcoholic percolate was evaporated, by means of a water-bath, to dryness; this dry extract (*a*), moistened with a little water, was introduced into a properly prepared funnel and exhausted with water. This aqueous percolate was evaporated to dryness by means of a water-bath, dissolved in a small quantity of alcohol, and treated with ether (*b*). A precipitate (*c*) was produced, which was separated by filtration and treated with alcohol, which dissolved only part of the precipitate. This alcoholic solution was again carefully evaporated to dryness, and was found to possess all the properties of phæoretin, behaving like it to water, alcohol, ether, water of ammonia, and giving an orange-yellow precipitate by supersaturating the ammoniacal solution with muriatic acid. The residue of the precipitate (*c*), which is insoluble in alcohol (probably aporetin), was partly soluble in water.

The ethereal solution (*b*), from which the precipitate had been obtained, was allowed to evaporate spontaneously, when it deposited small crystals of a beautiful yellow color, which were collected on a filter. They yielded with water of ammonia a beautiful carmine solution; with nitric acid, slightly heated, a dark red color, and on the addition of water of ammonia a violet color. The crystals dissolve with a yellow color in ether. The carmine-colored solution of these crystals with carbonate of potassa solution when evaporated changes first to violet and then to blue. All these reactions show without doubt that the crystals are crysophanic acid.

The ethereal solution (*b*), after it had ceased to deposit crystals, was evaporated, by means of a water-bath, to dryness, whereby a reddish-brown resin (*d*), probably erythroretin, was obtained, for which no particular reactions have been given.

The residue from the alcoholic extract (*a*) was treated in the following manner: It was dried in an evaporating dish, mixed with alcohol to a pasty consistence, and in a funnel exhausted with alcohol (*e*). A considerable portion of this residue remained undissolved, which was exhausted with cold ether (*f*), then treated in a flask with hot ether, and the insoluble portion separated by filtration. This insoluble portion was found to be not quite soluble in hot alcohol, but entirely so in water of ammonia with the aid of a gentle heat; the solution was of a dark brown color.

The alcoholic percolate (*e*) was evaporated, by means of a water-bath, to a syrupy consistence, and then treated with ether. A precipitate was produced, which was separated by filtration and again treated with alcohol, which dissolved out the phæoretin; the aporetin remained, being insoluble in alcohol. The ethereal filtrate was allowed to evaporate spontaneously, whereby crysophanic acid separated in small crystals. When the ethereal solution ceased depositing crystals, evaporation in a water-bath yielded a soft, fatty, resinous mass (*g*), which was sparingly soluble in cold water, more soluble in hot water, entirely soluble in ether and alcohol.

The ethereal percolate (*f*) was allowed to evaporate spontaneously, and deposited beautiful yellow crystals, only consisting of chrysophanic acid.

To determine the constituents of the aqueous extract, a few ounces of rhubarb were exhausted with cold water, the percolate evaporated by means of a water-bath, to a syrupy liquid, and this treated with alcohol, which separated the extractive matter; the alcoholic solution was evaporated, by means of a water-bath, to a syrupy liquid; the solution in alcohol and evaporation was repeated twice, to separate all the extractive matter, when the residue was exhausted with water, then dissolved in a small quantity of alcohol, and this solution treated with ether, whereby phæoretin and a small portion of aporetin were precipitated. The phæoretin was separated by solution in alcohol. From the ethereal solution only a trace of chrysophanic acid and erythroretin were obtained, the latter resin having no fatty appearance, as in the case of the alcoholic percolate (*g*).

NOTES ON BENZOIN.

By Albert C. Curtis.

From an Inaugural Essay.

For the following experiments, eight samples of benzoin were used, two of which were obtained from Prof. Maisch; the remaining six from different stores in Philadelphia:

1st. Three drachms of each of Nos. 2, 3, 4, 5 and 8 were mixed with about double the weight of lime, and boiled for half an hour with six fluid-ounces of water, filtered and cooled; an excess of muriatic acid was added to the filtrates, which gave precipitates of a white color, corresponding, when washed, dried and weighed, to 14⅓, 10⅓, 10, 8 and 1 per cent., respectively.

2d. Known portions of Nos. 2, 3, 4 and 5 were subjected to sublimation at a gentle heat, the vessel removed from time to time, allowed to cool and the contents stirred. The product of the sublimation of each sample was very small, and the weight was not taken. Each product, both by precipitation and sublimation, gave the characteristic tests for cinnamic acid.

3d. Sample No. 1 was a splendid specimen obtained through the kindness of Prof. Maisch. It was treated by precipitation, the same as in the first series of experiments, with no result.

Another portion was then treated by the same process, only using more water, boiling longer, and evaporating to three fluid-drachms before adding the muriatic acid. The result was a yield of six per cent. of an amorphous white precipitate.

4th. A portion of sample 1 was then sublimed, yielding nineteen per cent. of crystals. These and the amorphous precipitate giving no evidence of cinnamic acid, it was concluded that this sample contained benzoic acid only.

5th. Some pure cinnamic acid in an amorphous state was sublimed with a gentle heat. The amount of crystals obtained was comparatively insignificant.

6th. A known quantity of seven of the samples was treated with alcohol. The undissolved residue, dried and weighed, gave an average of twenty-one per cent. of insoluble matter.*

These investigations lead to the conclusions—1. That the results of experiments 1 and 2 were cinnamic acid, which, being less soluble in water than benzoic, would be thrown down from solution of cinnimate of lime upon the addition of muriatic acid.

2d. That considerable cinnamic acid is found in much of the benzoin in our market. Cinnamic acid can be obtained, free from benzoic acid, for all practical purposes, by boiling the benzoin with double its bulk of lime in forty times its own weight of water for fifteen or twenty minutes, filtering, cooling, acidulating strongly with muriatic acid, washing the precipitate, and recrystallizing from water acidulated with muriatic acid.

3d. That benzoic acid is best obtained by sublimation, and when procured in that way is almost free from cinnamic acid.

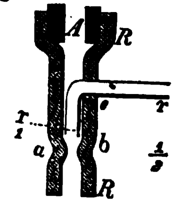
* It is to be regretted that the author did not give in detail the results of this series of experiments; one or two of the samples were very pure, dissolving without almost any residue.—Editor.

4th. That some benzoin in the market contains about one-fourth of impurities, and therefore its pharmaceutical preparations are correspondingly deficient in strength, unless an allowance for the impurities be made.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

A New Form of Water Air-Pump.—Herr C. Christiansen suggests a very simple method of arranging a Bunsen pump for use in filtration, etc., in the laboratory. The accompanying figure illustrates the suggested modification. R R is a thick walled caoutchouc tube, and is firmly attached about the water-pipe A. With a red hot needle an opening is pierced through R R at e, and into this the bent glass tube r r is passed. If the water is now allowed to flow through A, but little suction is exerted at r; a mercury column attached, as is usual in other forms of the water air-pump, shows an elevation of not more than 1″. If, however, the tube R R is pressed together, as at b, the quicksilver rises at once to 26″–27″; a proof that by this device an almost complete vacuum can be obtained. To obtain the best effect, much depends upon narrowing the tube at the proper place, for the great increase in effect manifests itself only when this is done at a few points. It is, however, only necessary to experiment until the desired conditions are produced, and then to permanently narrow at the proper point.—*Pogg. Annalen*, cxlvi, 155, through *Journ. of the Franklin Institute, Sept.*, 1872.



Oxide of Mercury and Iodide of Potassium.—Dr. Carl Jehn observed that an ointment prepared from lard, water, iodide of potassium and red oxide of mercury remained colorless. Experiments made, with the view of discovering the cause, proved that mercuric oxide is completely soluble in iodide of potassium, forming iodohydrargyrate of potassium and caustic potassa. The reaction takes place as follows: $HgO+4KI+H_2O=2KHO+2KI,HgI_2$.—*Archiv d. Pharm.*, 1872, *Aug.*, 97.

Analysis of Sedum acre, Lin.—The mossy stone crop or wall pepper was analyzed by E. Mylius, who obtained from it an alkaloid, 4·42 per cent. white wax and chlorophyll, 2·20 soft acid resin, soluble

in ether, 12·80 uncrystallizable sugar, 12.40 rutin, soft resin, magnesia and potassa, 30·56 mucilage, gum and malate of lime, and 37·62 cellulose and insoluble constituents. The alkaloid is uncrystallizable, has a strong alkaline reaction, oxidizes readily in contact with air, is not volatile, and has a disagreeable persistently acrid taste. It is readily soluble in alcohol, ether, chloroform and acids, little in water. Its salts are easily soluble in water, and crystallizable. Ammonia, potassa and its carbonate precipitate the solution of the hydrochlorate; the precipitates are insoluble in an excess of the precipitant. Tannin, chloride of gold, iodine, iodohydrargyrate of potassium and corrosive chloride of mercury produce precipitates, chloride of platinum only from concentrated solutions. An elementary analysis could not be made on account of the decomposition which the substance so readily undergoes.—*Ibid.*, 97–110.

Adulterated Kamala.—Dr. R. Kemper has lately met with kamala in the German and English commerce, yielding 20·7, 26·5, 50 and 54·4 per cent. ashes, without being able to obtain a better article. In 1868, when adulterated kamala was also in the market, an article yielding not over 8·7 per cent. ashes could be readily obtained. Anderson states the yield of ashes of pure kamala to be 3·84 per cent. —*Ibid.*, 118.

Detection of Sulphuric Acid in Vinegar.—Prof. Ludwig remarks that the method proposed by Mr. Jas. T. King* was originally devised by Chevallier—*Ibid.*, 172.

Culture of Opium in Germany.—Dr. G. Merck raised, in 1848, poppy from which he obtained opium yielding nearly 16 per cent. of morphia. Encouraged by these results, he planted, a few years later, half an acre with poppy, from which 2½ lbs. of opium, of good appearance and strong odor, were obtained, which, however, was useless for pharmaceutical or manufacturing purposes, it yielding scarcely 2 per cent. of morphia. Two years ago he again raised opium, which yielded only 7 per cent. of morphia.

The author believes that the quality of opium depends greatly on the soil, and points to Egypt, where, with a warm climate, opium is produced, rarely if ever exceeding 8 per cent. of morphia. He believes that the neighborhood of Darmstadt is not adapted for opium

* American Journal of Pharmacy, 1872, p. 159.

culture, and that perhaps for similar reasons, Aubergier's experiments on a more extended scale had to be discontinued.—*N. Jahrb. f. Pharm.*, 1872, *Aug.*, 65, 66.

The Separation of Magnesia from Potassa and Soda is effected by Th. Scheerer by evaporating the chlorides with oxalate of ammonia to dryness and heating to faint redness. On treating the residue with water, the carbonates of potassa and soda are dissolved, while magnesia remains behind as carbonate. Carbonate of ammonia cannot be substituted for the oxalate.—*Ibid.*, p. 94, from *Jour. f. pr. Ch.*

Test for Genuine Raspberry Syrup.—The New German Pharmacopœia directs to mix the syrup with half its volume of nitric acid, which must not change the color to yellow. Dr. Hager observes that the artificial syrups colored with anilin are *instantly* colored yellow on being mixed with the acid, while genuine syrup of raspberries at first retains its color, but gradually turns yellow. If the yellow color appears in a few minutes the syrup was made of diluted raspberry juice.—*Pharm. Centr. Halle*, 1872, *No.* 37.

Preparation of Ferricyanide of Potassium.—A solution of the ferrocyanide is mixed with a little more muriatic acid than is necessary for its chlorine to oxidize the former. A clear solution of chlorinated lime is then added until ferric chloride proves the absence of ferrocyanide. If the chlorinated lime had been previously assayed, the necessary quantity may be calculated. The free acid is neutralized with chalk and the clear liquid evaporated to crystallization. The first crystals, after having been washed with a little distilled water, are perfectly pure. The product of subsequent crystallizations usualy shows traces of lime, which are removed by recrystallizing once.—*Ibid.*, *Bay. Ind. u. Gew. Bl.*

Estimation of Coffeina in Tea.—E. Lieventhal exhausts finely powdered tea leaves with boiling chloroform in a flask provided with a perforated cork and a straight glass tube several feet long, to condense the vapors of chloroform. When cool the contents of the retort are thrown upon a filter, which is washed with chloroform until the filtrate passes colorless. The chloroform is then distilled off by means of a water-bath, and the residue repeatedly boiled with distilled water. The filtrate, after evaporation, leaves the coffeina in a crys-

talline condition. This method is adapted for the quantitative determination of coffeina; for 100 grains of tea leaves, completely exhausted with water and then mixed with one grain of coffeina, yielded exactly this amount by the above method.—*Pharm. Zeitschr. f. Russl.*, 1872, p. 369.

Estimation of Fats in Volatile Oils.—Ferdinand Rhien objects to the methods of evaporating from bibulous paper and of treating with alcohol, sp. grav. 0·823, as liable to yield incorrect results in examining volatile oils for adulterations with fats. He proposes to boil water in a half litre flask and conducting the steam to the bottom of a smaller flask containing about 100 c. c. of water and a measured sample of the volatile oil. The second flask is connected with a Liebig's condenser and the distillate collected in a graduated tube. The distillation is continued until the oily layer in the tube ceases to increase in volume, which gives directly the true amount of volatile oil contained in the sample. The contents of the smaller flask may then be agitated with ether, and after evaporating the same in a beaker glass, the nature and quantity of the adulteration may be ascertained. For high priced oils 1 c. c. is quite sufficient for the experiment; of cheaper oils 10 to 15 c. c. may be taken. The operation is usually finished in from 10 to 15 minutes.—*N. Repert. f. Ph.*, 1872, 502–505.

Luteic Acid, the Coloring Matter of the Flowers of Euphorbia cyparissias is prepared by Hœhn by digesting the fresh flowers with alcohol, distilling off the solvent and precipitating the residue with subacetate of lead. The precipitate is decomposed by sulphuretted hydrogen and the solution evaporated to crystallize. The crystalline crusts are washed with ether to remove chlorophyll and a green resin, and then recrystallized from spirit of ether and finally from diluted alcohol.

The acid forms fine yellow needles, is inodorous, bitter and astringent, fuses at 273° C., (?) and sublimes at 270° C. (?) It dissolves in 11000 p. of cold, and 3400 p. of boiling water, in 23·7 p. cold absolute alcohol, and in 272 p. of ether. It reduces nitrate of silver and Fehling's solution, and does not yield glucose with acids.—*Journ. de Pharm. et de Chim.*, 1872, *Aug.*, from *Bull. Soc. Chim.*

ON THE USE OF PEPSIN WINE IN THE ARTIFICIAL FEEDING OF INFANTS.

Dr. W. Jackson Cummins made an interesting communication on this subject to the Cork Pathological and Medico-Chirurgical Society. "The value of Pepsin," he remarked, "in those forms of dyspepsia attended by a deficient secretion of gastric juice, is so well known and generally understood, that it is unnecessary for me to trespass on the time of the Society by more than an allusion to them. In the diseases of children, however, and especially as a substitute for a wet nurse, when a mother is unable or unwilling to suckle her own child, the benefit of this valuable aid to digestion is not, I believe, as generally known, although allusions to it are to be found in medical essays. * * * *

"There is nothing of course like a good breast of milk for an infant, if it can be had; and in the 'good old times,' when the peasantry and small farmers lived on potatoes and milk, without stimulating their nerves with strong tea, nor their brains with penny-a-liner's novels, there was an ample field for the selection of a foster parent, but now even when the *rara avis*, a good nurse, is procured, she is so independent and knows her power so well, that any caprice must be humored, and she is always ready to throw up her situation or neglect her charge.

"A wet nurse is, then, an admitted torment, and a balance struck between its advantage and disadvantage is generally against the former.

"Artificial feeding by bottle is a great improvement upon the old system of spoon feeding, as the act of suckling stimulates the salivary glands and insures due insalivation, which is an important part of infantile digestion. With such an aid the stomach of most *human* infants is vigorous enough to fall into the way of digesting *cow's* milk, properly diluted, and mixed with sugar and cream to assimilate the proportion of its constituents to human milk—but besides the relative excess of casein and albumen contained in cow's milk when compared with human, the coagulum of the latter is 'soft, flocculent, and not so thoroughly separated from the other elements of the fluid as the firm, hard curd of cows' milk is from the whey in which it floats.' (West.)

"And when we reflect that the digestive organs of the *human* infant are found to digest human milk, and the force of its gastric juice proportioned to the solution of its soft flocculent coagulum, we can understand why the solvent power of its gastric juice is sometimes unequal to redigesting the firm curd of cow's milk. When such is the case, acetous fermentation is quickly set up, offensive gases distend the stomach and taint the breath, vomiting and diarrhœa set in, and in process of time the little patient sinks into a miserable state of marasmus, and dies.

"The remedy for this state of things is simple, for although we cannot change the elementary composition of the milk we have to use, we can introduce into the infant's stomach a digestive power proportioned to the food it has to use—the organic principle of digestion taken from the stomach of the calf.

"It is now many years since I first applied this simple theory to practice in the case of one of my own children, who, when about three or four months old, was reduced to a condition of marasmus by vomiting and diarrhœa, due to imperfect digestion of cow's milk. I ordered fifteen or twenty drops of pepsin wine, to be given immediately before or after each meal. Soon after commencing it he began to improve, and by degrees all bad symptoms vanished, and nutrition was quite restored. The pepsin was continued until he was nearly two years old, and he thrived at least as well as if he had been wet nursed; other treatment of course preceded and accompanied the use of the pepsin, but it was not until the latter was commenced that improvement took place.

"Shortly after, a child born in England, and bottle-fed, was brought over to this country when about six months old; he also was suffering from infantile dyspepsia, and was pining away in a listless, apathetic state, quite indifferent to surrounding objects, and appearing as if he would lapse into idiocy from mal-nutrition of the nervous centres.

"I immediately ordered him pepsin wine, which produced such beneficial effects that after it had been continued about twelve months, he had become a bright, intelligent, well nourished child.

"Since then I have never recommended a wet nurse, and have used pepsin wine largely in dispensary, hospital, and private practice, and have seen many apparently hopeless cases recover under its use."—*Virg. Clin. Rec., Sept., from Dublin Journal of Medical Science.*

LABORATORY NOTES.*

By Edward Smith, F.C.S.

Bromide of Potassium.—This salt is generally found in commerce of a high degree of purity. This is not, however, always the case; a sample sent to me proved to be contaminated with chloride of potassium. The amount of chloride was estimated as follows, iodides, iodates, and carbonates having been previously ascertained to be absent:

·0640 grains of the dry salt were titrated with $\frac{n}{100}$ solution of silver nitrate, potassium chromate as indicator, 55·5 c. c. of $\frac{n}{100}$ silver were required to complete the reaction, and

$55{\cdot}5 \times {\cdot}00119 = {\cdot}0660$; the volume of silver solution used is therefore in excess of that required for pure potassium bromide, for ·0640 (amount taken) should require 53·78 c. c., since $\cdot0640 \div \cdot00119 = 53{\cdot}78$ and

$$
\begin{array}{lll}
51{\cdot}0 \text{ c. c. } \frac{n}{100} \text{ silver} \times {\cdot}00119 & = & {\cdot}06069 \text{ K Br.} \\
4{\cdot}5 \text{ c. c. } \frac{n}{100} \text{ silver} \times {\cdot}000745 & = & {\cdot}00335 \text{ KCl.} \\
\hline
55{\cdot}5 \text{ c. c.} & = & {\cdot}06404 \text{ K Br.} + \text{K Cl.}
\end{array}
$$

and $\cdot00335 \div \cdot0640 \times 100 = 5{\cdot}20$

$\cdot06069 \div \cdot0640 \times 100 = 94{\cdot}80$

The sample, therefore, contained 5·2 per cent. of chloride and 94·8 per cent. of bromide of potassium.

Acetic Acid.—Iron is not usually mentioned in the text-books as an impurity in this acid. A small amount of iron proves very tiresome, since, if the acid be used for preparing mindererus, the iron is constantly and gradually depositing. On examining some acid which had been partly used in making mindererus, I found it to contain iron and manganese, the proportion of the former metal was 2·67 grains to an imperial pint. The manganese was not estimated, but was very readily detected in the iron sulphide (thrown down by ammonium sulphide from the neutralized acid) before the blow-pipe. In every other respect the acid was satisfactory.

Glycerin.—The high price of English glycerin has encouraged the introduction of foreign supplies. English glycerin, as a rule, stands the Pharmacopœia tests of gravity, etc., well. Continental samples,

* Read at the Brighton meeting of the British Pharmaceutical Conference, August 14, 1872.

although professedly pure, and "equal to Price's," are not always reliable; either the gravity is low, or they are not odorless, or perfectly free from metallic impurity. One specimen, apparently pure, I found to contain a notable amount of some sulphur compound (not determined), probably arising from H_2S having been used to free the glycerin from metals. It had a sp. gr. $= 1 \cdot 250$, without odor, free from metallic impurity, and generally stood the usual tests. On warming gently with dilute acid, H_2S was given off in sufficient quantity readily to react upon lead paper, and to discolor metallic solutions.

A mixture composed of dilute acid and this glycerin and water became highly offensive within a couple of hours at the ordinary temperature. As glycerin and dilute acid frequently enter into the composition of mixtures and lotions, the occurrence of sulphur in the former is a possibility which dispensers should bear in mind. Its presence can readily be detected as above indicated.

Bismuth.—The common impurities of metallic bismuth are arsenic, antimony, copper and lead. I have very rarely met with lead, but my experience is perhaps somewhat limited. The amount of arsenic and antimony is generally small, and will not require here any especial attention, since the greater portion (if not quite all), of these two metals is eliminated during the subsequent treatment for the removal of copper, which latter is the most difficult metal to get rid of.

In the purification of commercial bismuth, instead of following the B. P. method of fusing with nitre, I have adopted the process of Hugo Tamm,* which has proved in my hands exceedingly efficient and satisfactory. The treatment consists simply in fusing the coppery bismuth with potassium sulphocyanide. Tamm says, "The sulphocyanide which I use is prepared by mixing eight parts of cyanide of potassium and three parts of flowers of sulphur. One part of this mixture is thrown over sixteen parts of the metal melted at a low temperature." A bright red heat is sufficient, such as may be readily obtained by almost any Bunsen burner.

In order to satisfy myself of the thorough elimination of the copper by this process, a sample of coppery metal and the resulting purified button were carefully examined as follows:

8·2585 grains of the impure bismuth were dissolved in dilute nitric [illegible], ammonium chloride added, and the bismuth precipitated as oxy-

* Chemical News, Vol. xxv, p. 100.

chloride by the addition of a large volume of water, excess of ammonia was now added, the precipitate thrown in a filter, well washed, and the acidified filtrate divided into two equal portions, α β.

Through α, H_2S was passed to excess, the precipitate so formed collected, washed and ignited. The residue thus obtained is a mixture of copper sulphide, oxide and sulphate. To remove the latter, it was again carefully ignited with ammonium carbonate, and the resulting mixture of copper sulphide and oxide weighed. The weight = ·0115 grains, this × 2 = ·0230 grains in quantity taken (3·2585 grains) and ·0230 gr. = ·01836 grain copper = ·563 per cent. copper in sample examined. As the percentage of copper in copper sulphide and oxide is identical, a mixture of the two is of no consequence in estimating the amount of metallic copper.

The portion β of the filtrate was treated in a similar manner, by passing H_2S through, but the resulting precipitate was dissolved in nitrohydrochloric acid, evaporated to dryness, and the residue dissolved in dilute hydrochloric acid. From this solution the copper was precipitated as metal by zinc in a platinum dish in the usual way. The weight of metal obtained was equal to ·558 per cent. of quantity taken. The mean of the two experiments = ·563 + ·558 ÷ 2 = ·560 per cent.

48·45 grains of impure metal were then fused with a mixture of 2·5 grains pure K Cy, and 1·0 grain S for fifteen minutes. The fire was then removed, and after a few moments, to allow the slag to separate, the crucible being gently tapped to agglomerate the metal, the latter was poured out, and the button when cold weighed:

Weight of button = 44·25 grains, the loss was therefore 4·20 grains = 8·6 per cent.

This loss is, however, much too great, the fact being that I did not succeed in obtaining the whole of the metal in the button, brilliant metallic specks being visible after cooling, disseminated through the slag. A second fusion of the latter yielded a small button, but on examination it was found to be contaminated with particles of slag, and consequently gave evidence of the presence of copper.

Subsequent operations have proved that the loss should never exceed five per cent.

I must here remark, that the proportions laid down by Tamm work well if *pure* cyanide be used, but if ordinary commercial fused cyanide be employed, then a larger proportion is necessary. Practically, I

have found that 50 parts of impure metal required from 3·5 to 4 of cyanide with 1 of sulphur. If a deficiency of cyanide be used, sulphide of bismuth is formed, thus involving a second fusion, or entailing a serious percentage loss of metal in the button, but this need not happen if the above precautions be observed.

A weighed portion of the button first obtained was dissolved, and after the separation of Bi. as before, treated with H_2S, but *not a trace* of Cu. was revealed. Excess of ammonia to the acid solution did not produce the slightest coloration, nor did any of the usual specific tests for Cu. indicate the slightest trace of that metal. The coppery bismuth had, therefore, been completely freed from the Cu. by the very simple process of Tamm.

Since writing the above, I have met with a paper by Mr. Schacht,* wherein he gives the results of some of his experiments in removing Cu. from Bi. by fusion with nitre. It is stated that the whole of the Cu. cannot be removed by the B. P. process. This statement is doubtless correct; repeated fusions are certainly necessary. The process of Tamm, so far as my experience goes, is unquestionably by far the more perfect, and I think leaves nothing to be desired. A little sulphur may be left with the metal, but this is practically of no consequence. With regard to percentage loss, Mr. Schacht states "that the loss varies with the duration of the process from 7 to 17 per cent." In his experiment, 1000 grains of coppery bismuth, after three fusions with nitre, lost 170 grains, and "still yielded abundant evidence of copper." In this respect, therefore, as well as in the more thorough efficiency, the process of Tamm may well supersede that of the present Pharmacopœia.—*Pharm. Journ. and Trans., Sept.* 14, 1872.

ON THE FUSION OF METALLIC ARSENIC.†

By J. W. Mallet, Ph. D., M. D.

Professor of Pure and Applied Chemistry, University of Virginia.

Experiments on this subject, made by Mr. Dunnington and Mr. Adger, students in the Laboratory of the University of Virginia, under the author's directions, were described. These experiments had been undertaken in view of the generally repeated statement that ar-

* Pharmaceutical Journal, April, 1868.

†Read before the British Association, Brighton Meeting, Section B.

senic cannot be fused, but passes directly from the solid into the vaporous state, and that an attempt to secure increased pressure by using a sealed tube only results in bursting the tube. The statement by Landolt* (given apparently without further details), that, by using a glass tube enclosed in one of iron, the metal heated for some time to low redness under pressure may be melted into globules, was noticed only after the experiments to be mentioned had been made.

Arsenic, in the form of small fragments and coarse powder, was placed in a thick barometer-tube of soft glass and of small bore, well sealed at both ends and enclosed in a piece of wrought iron gas-tubing closed at each end by an iron screw cap; the space between the two tubes was filled with sand well shaken down, and the whole was heated to redness by a charcoal fire. Another similar iron tube placed beside the former served to contain several little glass tubes with samples of different metals whose fusion might afford some indication of the temperature at which that of the arsenic occurred.

Arsenic thus treated was found, on cooling, to have fused into a perfectly compact crystalline mass, moulded to the shape of the tube of steel-grey color and brilliant lustre, of sp. gr.=5·709 at 19° C. It possessed a considerable degree of cohesive strength as compared with common sublimed arsenic, and even seemed to exhibit faint traces of flattening before crushing under the hammer. It gradually tarnished on exposure to the air, and presented all the chemical properties of ordinary crystalline arsenic obtained by sublimation. The temperature required for fusion lies between the melting-points of antimony and silver.

The glass tube used was found greatly distended by the tension of the vapor, and the siliceous sand, even when of the purest kind (from Fontainebleau), and previously well washed with hydrochloric acid, and then with water, was cemented together (in a way very interesting in connection with the history of metamorphism) into a kind of artificial sandstone. Specimens of fused and semi-fused arsenic, and of the tubes surrounded by a thick crust of compacted sand, were exhibited to the Section.

—*Chem. News* [*London*], *August*, 30, 1872.

* *Verhandl. d. niederrhein. Gesellschaft,* August 4, 1859, quoted in Will's *Jahresbericht*, for 1859, S. 182.

CHEMICAL NOMENCLATURE.*

By Professor A. Crum Brown.

Setting aside in the meantime "trivial" or "proper names" (names which are simply arbitrary words or marks, each indicating, in virtue of a convention applicable to each individual case, a particular substance), there are two systems or kinds of systems of chemical nomenclature. These may be distinguished as, 1st, the composition system, and 2d, the functional or relational system, or class of systems. In the first the name of a compound indicates the elements or radicals contained in it, and sometimes their proportions. Thus Chlornatrium, Chloriod, dreifach Chloriod, Siliciumwasserstoff, etc. In English we have few names so distinctly compositional in form (we have, indeed, zinc methyl and all the other allied names), but many of our names, although functional in form, are really compositional. Thus, chloride of A means with us nothing more than, or different from, a compound containing the elements chlorine and A; and chloride of sodium, chloride of iodine, ter-chloride of iodine, siliciureted hydrogen not only represent the same substances as the German names just quoted, but tell us neither more nor less about the substances than these German names do. On the other hand, functional names indicate the chemical relations between substances. We may take as examples such names as the anhydride, the amide, the aldehyde, the nitrile of acetic acid. These derivatives of acetic acid contain no acetic acid, but they stand in certain definite relations to that substance, and the anhydrides, amides, aldehydes, and nitriles of other acids stand in the same relation to them. What is still, notwithstanding the efforts of modern chemists, the common popular nomenclature of salts, although originally intended as a compositional nomenclature, might with perfect consistency, be retained as a functional nomenclature. The objection to the term "muriate of soda" was that the substance so named contains no soda. But the amide of benzoic acid contains no benzoic acid. Soda contains oxygen; muriate of soda contains none (unless chlorine be an oxide), but the nitrile of benzoic acid contains no oxygen, although the acid itself does. The name muriate of soda originally meant the *compound* of anhydrous muriatic acid, $2HCl—H_2O$, and anhydrous soda Na_2O, $(2HCl—H_2O)+Na_2O$. We may now, if we please, use the name to

* Paper read before the Chemical Section of the British Association at Brighton.

mean the result of the action $2HCl + Na_2O—H_2O$. If we do so, the name becomes a functional one, and the phrase "muriate of," or, what is neither better nor worse, "hydrochlorate of," expresses the complex operation—addition of hydrochloric acid and simultaneous separation of water. Similarly, in the case of such names as sulphate of potash, nitrate of oxide of silver, etc., the phrases "sulphate of," "nitrate of," express the complete operations, addition of sulphuric, or nitric acid, and simultaneous separation of water.

While the old view that salts are compounds of anhydrous acids and anhydrous bases is now abandoned by most theoretical chemists, a relic of this view still remains in the most advanced systems of nomenclature, producing an inconsistency really inconvenient to the teacher and student.

The objection taken to the name hydrochlorate of soda was not only that the substance contains no soda, but also that it contains no hydrochloric acid; this objection is perfectly valid against the name as a compositional one, but does it not equally hold against the words sulphate, nitrate, acetate, etc.? If we are to have hydric sulphate and hydric acetate for sulphuric and acetic acids, why not hydric muriate for muriatic acid? That this question is not altogether an absurd one will be obvious if we consider that all chlorides are not muriates. Those substances which are by general consent called salts stand in a definite genetic relation to the corresponding acids (or the hydric salts of the series), and it is inconvenient to have the same general name—chloride—applied to substances which do stand in this relation to hydrochloric acid, and also to those which do not. We may divide the chlorides into two groups, very different in character in their extreme members, and gradually shading into one another. We may take chloride of sodium as a representative of the one, and the chloride of phosphorus as a representative of the other. Chloride of sodium is a muriate; the chloride of phosphorus might be better described as the double anhydride of muriatic and phosphorous acids. We may call the acids and acid anhydrides negative, the hydrated bases and anhydrous bases positive; arranged in a series, we find the series a continuous one from the most positive or basic oxides or hydrates to the most negative; it is, however, convenient to have a zero point, and it is no disadvantage if this zero point be an arbitrary one. When we come to express numerically the amount of positiveness or negativeness of those oxides and hydrates, it will be necessary to

have a zero point, and a very convenient one is that which corresponds pretty nearly to the generally understood limit between bases and acids, and depends upon the direction in which the action A+water=B+hydrochloric acid takes place; where A is a chloride and B a hydrated or anhydrous oxide.—*Pharm. Journ. and Trans., Sept.* 28, 1872.

ANALYSIS OF THE EMPIRE SPRING AT SARATOGA, N. Y.

By C. F. Chandler, Ph. D., & F. A. Cairns, A. M.

This celebrated spring has recently been subjected by us to a careful analysis with the following results:

One United States gallon of 231 cubic inches contains:

Chloride of Sodium,	506.630	grains.
Chloride of Potassium,	4.292	"
Bicarbonate of Magnesia,	42.953	"
Bicarbonate of Lime,	109.656	"
Bicarbonate of Lithia,	2.080	"
Bicarbonate of Soda,	9.022	"
Bicarbonate of Baryta,	0.070	"
Bicarbonate of Strontia,	a trace.	
Bicarbonate of Iron,	0.793	"
Bromide of Sodium,	0.266	"
Iodide of Sodium,	0.006	"
Sulphate of Potassa,	2.769	"
Phosphate of Soda,	0.023	"
Silica,	1.458	"
Alumina,	0.418	"
Fluoride of Calcium, } each a trace.		
Biborate of Soda, } each a trace.		
Organic Matter, } each a trace.		
Total,	680.436	grains.
Carbonic Acid Gas,	344.669	cubic in.

New York, Aug. 14, 1872.

—*American Chemist, Sept.* 1872.

CANTHARIDES.

By R. Rother.

recent paper of Prof. Dragendorff on cantharidal plaster in- writer to try the proposed process. This is based upon an

excellent theory, but in practice abounds with so many obstacles and yields such an unexpectedly inferior result, that the writer believes, should other operators be equally unsuccessful, it will never attain to popularity.

A good quality of cantharides in very fine powder was digested with an aqueous solution of potassium hydrate, then treated with a slight excess of chlorhydric acid, dried and converted into cerate according to the pharmacopœia. The resulting product was destitute of vesicating power.

However, the failure to produce blisters with this preparation, the writer is not inclined to charge entirely to Prof. Dragendorff's part of the process. The writer has found that a water-bath heat, as officinally directed, is often inadequate to dissolve the necessary amount of cantharidin for producing an active plaster. But by following the suggestion of Mr. Donovan, to use an increased and prolonged heat, a desirable plaster is most usually obtained.

The chief incumbrances to Prof. Dragendorff's process are:

Firstly. That the aqueous alkaline solution produces with the powdered cantharides a doughy mass not easily manipulated, and to bring this into a sufficiently fluid condition which the nature of the operation demands, an excessive quantity of alkaline solution, equal to about three times the weight of the cantharides, is necessarily absorbed. The large surplus of alkali again requires a proportionate amount of chlorhydric acid for neutralization.

Secondly. This mass, if a considerable quantity is under treatment, is not so easily dried, as exposure in the open air without artificial heat is entirely inadmissible by reason of the rapid formation of mould. The subsequent powdering of the dried mass is another unpleasant operation which pharmaceutists always endeavor to evade, especially as in this case the requirement is a repetition. The unsuccessful issue of the operation excites a doubt whether after all the cantharidin thus liberated is as soluble in the fatty excipient as it would be in its natural state of combination when subjected to an elevated temperature. When the prepared cantharides is not thoroughly dry, or if the fatty matter contains moisture, the cerate invariably and rapidly develops an exuberant growth of mould, but it was found that the presence of moisture in either good or defective cerate neither aided or detracted from the activity; because a good cerate made by the ordinary method may become mouldy from the presence of water

and still retain its activity; whilst a cerate made from perfectly dry prepared cantharides by prolonged heat with the fatty matter was unsusceptible of generating mould, but was equally ineffective as a vesicant.

A method much in vogue for regenerating inactive cantharides consists in dampening the powder with a small proportion of oil of turpentine and macerating it for several days previous to preparing the cerate. The oil dissolves a portion of the cantharidin and renders the rest more soluble in the fatty matters.

Another invariably successful method, much employed for reviving the activity of inefficient plaster, consists in the addition of a small quantity of chloroform, which abundantly dissolves uncombined cantharidin. The writer has found this procedure especially adaptable for the cerate made from prepared cantharides, with which it infallibly produces a powerfully vesicating plaster.

The writer, finding that the use of aqueous potash was very impracticable, then resorted to the application of alcoholic potash. This was attended by greatly superior advantages so far as the manipulation was concerned, since a comparatively less volume was required to moisten the powder, and as it was afterward far more easily expelled, but to produce a vesicating product it was equally powerless with the aqueous solution.

In the application of an aqueous solution of potassium hydrate, the writer noticed that even with a very small proportion of the dilute solution a very distinct evolution of ammonia occurred, which was rendered more perceptible by the proximity of a glass rod moistened with acetic acid. A similar result was obtained with the alcoholic solution.

Now, since cantharidin is insoluble in ammonia,* then the cantharidate of ammonia is evidently insoluble in water; perhaps, also, in alcohol, ether, etc. If, therefore, a portion of the cantharidin is originally combined as ammonium cantharidate, it is highly probable that this will remain unextracted by the ordinary solvents, but decomposed and dissolved by means of potassium or sodium hydrate. It will then also be decomposable by chlorhydric acid, and consequently the circumstantial treatment with fixed alkali can be dispensed with and a small amount of chlorhydric acid employed instead.

* That cantharidin is not insoluble in ammonia has been shown by Professor Procter, and recently again by Dr. E. Masing.—Ed. Am. Jour. Pharm.

The use of oil of turpentine or chloroform softens the cerate and increases its adhesiveness, a property which is always desirable. These agents are easily applied, and their effect upon cantharides is invariably positive. Therefore, in the absence of an authorized process with reliable results, the writer recommends the application of oil of turpentine or chloroform.

Prof. Dragendorff suggests that prepared cantharides could be advantageously employed for the preparation of cantharidin. But it is the writer's opinion that it would be vastly more practical to exhaust the cantharides with alcoholic potash, neutralize the tincture with chlorhydric acid, distil off the alcohol, and take up the cantharidin from the residue with chloroform or ether.—*Pharmacist and Chem. Record, August*, 1872.

NOTE ON GUAIACOL.

By John Williams, F.C.S.

In a recent number of the Pharmaceutical Journal (No. 92, third series, page 788), attention was drawn to the statement that creasote consisted mainly of a body called "Guaiacol," and which was a product of the destructive distillation of gum guaiacum. As this appeared to be a fact of some interest I determined to prepare a little of the substance and compare its properties with those of the ordinary creasote of commerce.

The process of preparing it is as follows:—Gum guaiacum reduced to powder is exposed in a shallow iron pan to considerable heat, sufficient to cause the commencement of charring, and until every trace of water is driven off. We thus avoid the frothing, which otherwise renders the distillation of the gum a very difficult matter. When the mass has been thus heated for some time it is transferred to an iron retort, furnished with a long iron tube, to act as a condenser. The heat must be increased gradually to low redness, and continued as long as any tarry matter continues to distil. In this way a product is obtained amounting to about one-third the weight of the gum employed.

This tar is again placed in an iron retort and distilled, when it yields about one-third of its bulk of a light brown oily liquid. This brown oil is treated with a solution of caustic soda, which dissolves a part of the oil, but leaves a considerable quantity which must be separated and rejected. The alkaline solution of the oil is now placed in

a retort and subjected to prolonged distillation, water being added from time to time, to make up for that which distils over. In this way a quantity of light oily matter passes over, having a very offensive smell, and floating on water. This is to be rejected, and when no more oil is observed to pass over, the alkaline solution in the retort is diluted, and a slight excess of sulphuric acid added, by which means a dark colored heavy oil is separated. This is distilled, and the oily product again treated with caustic soda and distilled as before, by which means a further small quantity of the light oil is separated. This alkaline solution on exposure to air soon turns of a very dark brown, almost black color, and when an acid is added after a few days a very dark purple colored oil is deposited. This oil distilled gives a light yellowish oily liquid, which after several distillations yields a colorless heavy oily liquid, which is the pure or nearly pure guaiacol.

Guaiacol is an oily liquid, considerably heavier than water; it is quite white when first distilled, but soon assumes a pale straw color. Its smell is characteristic of creasote, but not so disagreeable as some of the samples of that body found in commerce. The sample I have made begins to boil at 200° C, and soon rises to 210°, at which point eight-tenths distil over, and the remainder comes over at 215°. Pure creasote is stated in the books to boil at 210°. Guaiacol refracts light strongly, and has the taste as well as the general physical properties of creasote. It is soluble in glacial acetic acid, but insoluble in pure glycerin.

It appeared interesting to compare this body with creasote as found in commerce, more especially as some attention has lately been drawn to the fact, that creasote is sometimes sold consisting mainly of carbolic or crysylic acid, or other products of the distillation of *coal* instead of, as it ought to be, *wood.*

In commerce we find two kinds of creasote, said to be derived from wood, one well known in England, manufactured by Messrs. Morson and Son—which I shall call "English" creasote—is said to be made from Stockholm tar, and if so, is the product of pine-wood probably. The other, of German manufacture, is said to be the product of beech-wood. Of the common German coal-tar creasote, I have made no special note, but have employed pure carbolic acid in all cases to represent the coal-tar or phenylic product.

English creasote commences to boil at 200°, but almost immediately rises to 213°, at which about six per cent. passes over; the tempera-

ture then rising to 216°, at which about 34 per cent. passes over; then to 222°, when about 34 per cent. again distils, and then rises to 231°, when 16 per cent. is obtained, the remainder distilling at a still higher temperature. We thus find that this is a hydrated product, and that its boiling-point is considerably higher than the proper boiling-point of creasote as represented by Guaiacol.

German creasote commences to boil at 200°, gradually rising to 220°, 40 per cent. comes over under 203°, 34 per cent. at 210°, and 16 per cent. under 220°, thus boiling rather lower than it should for pure creasote, but apparently not containing much of the higher homologues.

Carbolic acid boils at 180°, and, when pure, its boiling-point is quite constant.

English creasote is insoluble in pure glycerin, as stated by Mr. Morson, in the Pharmaceutical Journal, No. 99, page 921.*

German creasote is soluble in glycerin.

Carbolic acid dissolves in glycerin in all proportions.

As I have before stated, guaiacol is not soluble in glycerin; it therefore became of great interest to find out, if possible, why the German creasote should be soluble, and thus differ from the guaiacol and English creasote, more especially as I found that the addition of say 50 per cent. of carbolic acid to either guaiacol or English creasote causes them to be perfectly soluble in glycerin. It thus becomes very important that we should, if possible, devise a mode of detecting the presence of carbolic acid in pure creasote.

For this purpose recourse was had to Professor Flückiger's process as described in Pharmaceutical Journal, No. 103, page 1008.† It consists in adding creasote (or carbolic acid) to a very small quantity of perchloride of iron in solution, then adding alcohol and afterwards diluting considerably with water. If carbolic acid alone is employed a beautiful blue color is produced, but if creasote, a dingy brownish liquid is the result. Now this test distinguishes between pure creasote and pure carbolic acid perfectly, but when I attempted to use it as a means of detecting the presence of carbolic acid in creasote it quite failed, the brown creasote reaction quite masking the blue produced by the carbolic acid. I tried various proportions, and in no in-

* Amer. Journ. Pharm., 1872, 310.

† Amer. Journ. Pharm., 1872, 465.

stance could I obtain a reaction I could depend upon, 50 per cent. and even 100 per cent. of carbolic acid mixed with English creasote or guaiacol being quite undistinguishable. Professor Flückiger distinctly states that his test enables us to detect the presence of carbolic acid in creasote, but I cannot agree with that statement; in my hands, at least, it does not answer.

In a recent number of the "Chemical News," a test was given by means of bromine. When bromine water is added to an aqueous solution of carbolic acid, a white oil is speedily deposited, but when it is added to an aqueous solution of pure creasote or guaiacol, a brown oil is the result. This test, however, fails, as might be expected, to distinguish carbolic acid when mixed with creasote; in all cases a brown oil is deposited, which is useless for the purpose we have in view.

Strong solution of ammonia dissolves carbolic acid readily (the solution turning blue after a few hours' exposure to the air) while guaiacol and creasote (both English and German) are only partially soluble, or at any rate would require a very large quantity of ammonia to effect complete solution. I found German creasote to be much more soluble than either guaiacol or English creasote, namely, one-half dissolving without much difficulty, when treated with about six times its bulk of strong liquor ammonia.

The English creasote so treated did not lose above one-fourth of its bulk.

The portion of creasote insoluble in the ammonia was separated; the ammoniacal solutions being diluted and neutralized with acid, also deposited the creasote which had been dissolved. These different samples were examined carefully.

The English, which had dissolved in ammonia when distilled, smelt better and more like guaiacol than the original sample of creasote before treatment; it also boiled nearer 210°, all distilling under 220°.

The portion which did not dissolve in ammonia when distilled, yielded a liquid which had a much more offensive smell and appeared to contain more of the impurities of the original creasote than the soluble portion; its boiling-point was, however, lower and almost identical with the first portion. Both samples were insoluble in glycerin. The German creasote, which did not dissolve in ammonia, retained its old boiling-point, but no longer dissolved in glycerin. The portion soluble in ammonia was carefully examined; its boiling-point was found to be almost the same as the normal creasote. Its smell was

good; almost identical with guaiacol, but it was soluble in glycerin. Attempts made to detect the presence of carbolic acid quite failed.

Other means were then tried to procure evidence of the presence of carbolic acid in creasote.

It is stated in the paper first referred to (Ph. Jour. No. 92, p. 789), that while the phenol series yields with nitric acid trinitrophenol or picric acid, guaiacol or creasote yields only oxalic acid. If this were true, we might hope to detect the presence of picric acid, and thus prove that carbolic acid had been contained in the creasote.

To determine this point, the creasote to be examined was first dissolved in about twice its weight of glacial acetic acid, and then added to an equal bulk of strong nitric acid, sp. gr. 1500. (If the creasote to be examined is added direct to the nitric acid, the action is so violent and unmanageable that no definite result can be arrived at.) The capsule containing the mixture must be placed on a sand-bath, and evaporated almost to dryness. When pure carbolic acid has been used, the product is a bright yellow crystalline mass (pure picric acid), but in the case of guaiacol or creasote (both English and German), the product is a brown, sticky, semi-resinous mass. This product, treated with a little hot water, is transferred to a large test tube or small retort, and a gramme or so of ordinary bleaching powder added, and a gentle heat applied, the result being the production of chloropicrin if picric acid is present, which can be distinguished without doubt or difficulty by its most peculiar and repulsive smell, or can be separated by distillation if thought necessary; but if oxalic acid is the product of the reaction, no chloropicrin is produced, but simply a liberation of chlorine. I am sorry to say that in all my trials I obtained chloropicrin, and not a trace of chlorine, and all other attempts made to isolate oxalic acid from the product of the reaction of nitric acid upon guaiacol or creasote having quite failed I have come to the conclusion that the statement respecting the different products obtained from creasote and carbolic acid by oxidation is incorrect. Picric acid, or some isomer of that body, is the product of the reaction in all cases, irrespective of the source of the creasote (or carbolic acid) being from coal-tar or from wood.

Attempts were made to distinguish between carbolic acid and creasote by the production of sulpho-conjugated acids. But the acid produced by creasote appears to be too much like the sulpho-carbolic acid for anything like a distinguishing test to be founded upon that reaction.

I regret that the results of my experiments are of a negative rather than of a positive nature, but I trust, unsatisfactory as they confessedly are, they may prove of service to any one who may wish to follow up the examination of the true nature of creasote.

There is, I think, no doubt that the English creasote is a genuine product of wood tar. It is, however, not a homogeneous body, but probably consists of several isomeric substances; while the fact of the German (beech-wood) creasote dissolving in glycerin led me to suspect the presence of carbolic acid, but all my attempts to demonstrate its presence have quite failed, and I can only conclude that beech-wood tar yields a creasote to a certain extent different to that yielded by either guaiacum or pine-wood tar. In some of its chemical properties German creasote much nearer approaches guaiacol than the English; its smell is almost identical, and its boiling-point very much nearer and more constant.

When English and German creasote are dissolved in strong caustic soda, and then diluted, the English becomes milky, and yields, when distilled, an appreciable quantity of light oil; the German, on the contrary, remains bright and yields no oil, which would tend to prove the German to be in some respects a purer article than the English.

The fact of the German creasote dissolving in glycerin ought to be explained, either by proving that beech-wood creasote really possesses this property, or has obtained it from some peculiarity in the mode of manufacture.

It would be very interesting to examine some of Reichenbach's original creasote, if an authentic sample could now be obtained; perhaps some member of the Conference may be able to assist in this matter.

To Mr. Myles Smith, our chemical assistant, I must express my best thanks for many of the suggestions, and nearly the whole of the experiments here detailed have been performed by him with great care and accuracy.

[In the discussion following the reading of this paper, Mr. Morson stated that his experiments had been made with Price's, not with diluted glycerin, as we inferred from Professor Flückiger's and our own experiments.*—Editor Amer. Jour. Pharm.]

* See Amer. Journ. Pharm., 1872, p. 334.

NOTE ON SUCCUS SCAPI TARAXACI.*

By Mr. Henry Barton, Brighton.

Dissatisfied with the variable character of the usual preparations of dandelion, in 1862 I collected some flower stalks with the flower in full bloom, and expressed from them the juice. Gratified with the appearance, taste and effect, the next year the experiment was resumed, rejecting the flowers and crushing only the stalks. Our notes for 1863 may be thus condensed:—From 75 lb. 12 oz. flowering stalks as gathered, 12 lb. 6 oz. flower heads were picked off and rejected; and allowing about 1½ lb. for drying and waste, from the remaining 62 lb. stalks by crushing and pressure were obtained 31 lb. 8 oz. of juice, to which we added 25 per cent. by measure of spirit, and stored in glass bottles; after some weeks it was filtered from the very small deposit, the resulting liquor remaining bright and retaining its characteristic taste.

From that time to this we have operated in much the same way, with the exception that on one occasion we added the spirit to the crushed pulp, and allowed it to remain 24 hours before submitting it to pressure; in the resulting liquor there was no appreciable difference from the former preparation either in odor, taste or color. Our note for the present year gives similar results: from 237 lb. of the stalks were obtained 123 lb. 4 oz. of the juice, also from 63 lb. flower heads we pressed 24 lb. 3 oz.; this latter we consider inferior and have kept it separate.

The yield would be greater if the plant came in direct from the collectors' hands; as it is, they gather it one day and forward it by carrier the next.

The stalk juice is not so rich in solid constituents as is that from the root; but if I may be permitted to quote Professor Bentley, who, when speaking of the juice from the latter collected in the summer months, remarked that "its value as a medicine most certainly did not depend solely upon the amount of solid constituents it contained, but principally, if not entirely, upon the presence of a bitter principle, which had been termed taraxacine. One of the best evidences, therefore, of the value of taraxacum or its fitness for medicinal use would be its taste, etc." If, then, we may be allowed to admit taste as one of the evidences of value, it will certainly be favorable to stalk

* Read before the British Pharmaceutical Conference.

juice, and judging from the frequent remarks of our friends in the medical profession and others who have taken it, I have reason to believe that, if not the best, it is certainly one of the best, most uniform and readily obtainable preparations of taraxacum, and one that can be kept for almost an indefinite period without changing.

I will only now remark that if required in quantity, there would be little difficulty in meeting the demand; we once gave *carte blanche* to our collectors, the children of a parish some miles hence, and they sent in in three days 1258 lb. How much they would have sent it is difficult to say, as we were compelled from an accident to our press to countermand the order. At first we were at a loss as to the best means of effectively breaking up the stalk, the pestle and mortar process being ineffectual and tedious, but upon trial found a Kent's mincer, set in the direction for cutting coarse, answer admirably, feeding our press as readily and rapidly as could be desired; indeed, so well does it bruise and divide succulent roots, leaves, stems, etc., that I can recommend our friends to give it a trial under similar circumstances.—*Pharm. Journ. and Trans.*, *Sept.* 14, 1872.

THE LAVENDER COUNTRY.*

The district of Beddington, associated with the palatial residence of the Archbishop of Canterbury, of which Wallington is a hamlet, contains about two hundred acres devoted to the growth of lavender. According to our informant, throughout the whole locality, including Sutton on the extreme verge, Carshalton and Mitcham, there may be counted about three hundred acres of lavender fields. Mitcham is the parent source of the herbal or "physic gardening," in the native *parlance*, and from that place, about twelve or fifteen years ago, some transplants were made to Beddington. From thence the growth has extended to the neighboring parishes, until, as at present, the eye is attracted on all sides by the broad sheets of color, and the air is scented with the perfumes. In no other part of England has the same success attended this kind of gardening, except in Cambridgeshire, where the production is said to be inferior, although this opinion might even be reversed by inquiries in that quarter. However, it is evident, in the case of the hop gardens in Kent and Sussex, something peculiar existing in the soil or climate, or both, makes

*Abridged from the "Journal of Applied Science," 1872, p. 339.

these plants to thrive. Those who have crossed the plains of Spanish Estremadura could have seen miles of waste land covered with the *Lavendula* species, and florists conclude that the same skill brought to the assistance of nature might equally result in the successful crop that finds its way first to the distillery, and then by many transmutations to the scent-bottle or the medicine-chest. The only peculiarity observable is a loamy upper surface for several feet upon a substratum of chalk, rather of a "holding nature," although dry. The ploughing at present is not so deep as in former years, and to this circumstance is assigned the reason why in place of bearing for eight or nine years as formerly, the plants are now exhausted in three or at the utmost in four years. Upon an open space at Wallington of thirty acres, the largest lavender-field in the locality, we were able to observe the different growths of the one, two or three years. Nearly adjoining was another four-acre enclosure, spread out as level as a billiard-board, which we can readily believe to be the finest example of the one year's crop that could be seen anywhere. Only a moderate application of manure is necessary at the outset in the autumn, when the planting takes place; and after the first year's harvesting, the plants have grown to such dimensions that every other row has to be taken out, and every other plant in the row that remains. The three years' growths are the first to come to maturity, and then the second, and then the third. The harvest takes place in August. The cutting, which is done by the sickle, appears an art of itself, which affects the crop in the future year. The laborers are followed by women and girls, who immediately pack and tie the lavender up in mats, to protect it from the rays of the sun, or otherwise the quantity of oil to be extracted would be reduced before it could be taken in hand at the distillery. Small quantities have been previously cut before they are fully ripe, for Covent Garden Market, or for sale about the towns and villages in the neighborhood. The distillery process is carried on upon the spot; as the volumes of smoke from several chimneys and the strong odor of herbs around the buildings sufficiently testify to some very odoriferous process within; for it must be remembered that peppermint, rosemary, dill, chamomile, as well as lavender, have to find their way to the same crucial test. Beneath a brick-built shed stands a row of stills, with what are called worm-tubs attached to each still. Upon the ground-floor the furnaces are being attended, and the percolator watched, as a trickling noise indicates

that the oil is being extracted by the process going on. Above the furnaces are the stills, of dimensions sufficient either to contain half a ton or a ton weight of herb, and the building is spacious enough to admit of carts being driven in for the purpose of unloading. The still is filled thrice in four-and-twenty hours, namely, eight hours to a run. The men get upon the upper floor, remove the still-head by a lever, then take the lavender from the mats and tread the stalks down with their feet until the copper is tightly filled to the brim. Liquor at boiling heat is then taken from the top surface of the worm-tub, although at the bottom and lower surface the water is quite cold, and the furnaces are set to work. The *worm* consists of piping attached to the head of the still, and passes round and round the tub which contains the cold water. The men watch the bringing over of the still—that is, the moment when the liquor begins to flow over the head into the worm. Directly it does so, they know that the oil is running, and immediately damp down the furnaces. The boiling liquor from the herbs, by passing through the tubing immersed in cold water, becomes condensed, and the oil separates from the water and runs into the percolator at the foot of the worm-tub. This bringing over is the most critical point in the whole operation; then great attention and experience are needed, otherwise the herbs, both stalk and flower, might be taken into the worm, and the oil be spoiled. So well practiced, however, are the men employed that what is called a "run-foul" is scarcely known during the whole of the distilling season. From thence it is taken and placed in dark glass bottles with short necks, containing 4 lbs. to 7 lbs. each, ready for merchandizing. When one lot has been distilled the still top is removed by the lever, and the charge taken out with long forks. The steam and vapor that arise are very great—for the uninitiated quite overpowering; and what is termed the "walk" being very heavy, the men themselves have to labor hard to get out the refuse, which is thrown just at the back of the building for manure. The coppers are filled up again with herbs, fresh water is pumped into the worm-tub to supply what has been taken off the surface for the still, and to replace what has passed off in the evaporation that has been always going on, and the process again proceeds. The quantity of oil extracted from a ton of lavender varies according to the influence of the season; from 15 lbs. to 16 lbs. is considered a fair average, very seldom it reaches 21 lbs., sometimes not more than 10 lbs. The distilling lasts about two

months, from the first week in August to the second week in October, according to the abundance or otherwise of the surrounding crop. The business itself is separate from the growing; the small growers as well as the large take their crops to the distillery, and pay a certain agreed-upon rate per ton. The results during the present season have been favorable, although the continuance of wet weather somewhat interfered with the outdoor work. These operations may be seen and inquired into by following out the route we had taken from Sutton, through Carshalton to Wallington, thence by the footpaths across the lavender-fields to Beddington, and on to Waddon Station upon the railway of the London and Brighton Company.

THE MANUFACTURE OF ATTAR OF ROSES IN TURKEY.

The art of extracting the odoriferous liquids from the rose,—favorite flower of all civilized nations,—is very old. The ancient Greeks and Romans, the Egyptians and the Hindoos, were acquainted with rose-waters, but the oil of roses, the most precious part of the blossom of the flower, which alone gives the delicious flavor, and which is to be found only in extremely smallest quantities in the leaf cells of the blossom, was unknown to the Greeks and Romans. The preparation of it was the invention of the old Hindoos, and even at the present time a great quantity of the oil is produced in India. Ghazimpoor-on-the-Ganges is now the most important place where this dear and precious ethereal oil is manufactured. But rose-waters are produced in other parts of the world in as great quantities as there. The Indian oils and rose-waters are consumed in that country, where these perfumes are in as much favor and used as extensively as the Eau de Cologne with us. It is most remarkable that, of the large quantity of rose-oil which England consumes, none of it comes from India. The produce of the "Shiraz plain," in Persia, is also very insignificantly represented in the European market. It has been noticed that Persian rose-water is not exported for the European trade, and that rose-oil is not produced there but imported from India. The famous rose districts of "Medinet-Fayum," south-west from Cairo, are only of advantage to Egypt; and the once important rose-oil produce of Srinagars is in decay.

The rose-oil which Europe consumes at present comes almost exclusively from the southern slopes of the Balkan, where, in some one

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hundred and fifty places, the in-gathering of the rose-blossoms and the manufacturing of the rose-oil takes place. The quantity of oil which is produced in the south of France is very unimportant as compared with the quantity of the Turkish produce.

The most important Turkish districts where this valuable article is produced are Tchirpan, Philippopolis, Carlova, Yeni-zaghra, and Kizanlik; this last is the most important of all. The produce of this place alone amounted in 1857 to 199,000 midkals or metticals (1 mettical equal to 4·79 grams.) Now the quantity is estimated at 500,000 metticals.

Professor Dr. Hochstetter, from the Vienna University, in his most interesting reports to the Geographical Society at Vienna, of his travels through Roumelia in the summer of 1869, has given very important data of the produce of oil at Kizanlik, which he gathered chiefly from Mr. Julius Kasselmann, settled there. These data may serve to remove many incorrect statements published on the subject.

The roses planted in the basin of Kizanlik have light red blossoms. They are planted in rows like the vine. Sometimes roses and vines are planted intermingled on the same plot. The most important species of roses planted there are *Rosa damascena*, *R. sempervirens* and *R. moschata;* the first of these is also planted in the south of France; the last-mentioned, which has a slight musk flavor, gives the chief material of the produce of the Indian rose-oil.

The roses are gathered in their blossom state during the month of May, and are subjected to distillation together with their green calyx leaves. The still consists of a tinned copper boiler, from which a pipe runs into the cooling-tub. In every boiler are placed 50 okes* of water, and 10 to 20 okes of roses, and the heating takes place over an open fire. The mass is boiled for two hours; the first part of the distilled fluid is put again into the boiler; the fluid, then condensed, is gathered into bottles with broad bottoms and straight necks. Water and oil distil over at the same time, the latter, of course, floating on the surface.

When there is a layer of oil of the thickness of a finger, it is removed. This is done by a funnel-shaped spoon, with a very thin opening at the top which permits a passage to the water but not to

* Oke—1200 grams.

the oil. 5000 lbs. (German weight) of roses give by careful distilling 1 lb. of oil.

The so-called freezing degree, that is, the degree of temperature when the separation of the solid parts takes place, varies with the oils of Kizanlik between 8 and 16 degrees Réaumur, equal to 50 to 68 degrees Fahrenheit. The best oils get solid or stiff at these temperatures; they come from the colder mountain districts, whereas the oils from the warmer localities get solid at 12 to 16 degrees Réaumur, equal to 59 to 68 degrees Fahrenheit. These oils, marked strong oils, have a less delicate flavor, and are preferred by ignorant traders.

It is evident that such a valuable substance as the rose-oil is very much exposed to adulteration. The adulteration takes place most extensively at the home of the oil, where also the substance for adulteration is produced on a large scale. This article, also an ethereal substance, is called in India "rosia-oil," in Egypt "idris-oil," and in England "ginger-oil." It is distilled from species of *Andropogon* and *Cymbopogon.** The idris-oil is sometimes called "geranium-oil." Among the data furnished by Mr. Kasselmann is one that the distillers often adulterate the rose-oil with geranium-oil which is imported from Alexandria. This is but idris-oil exported from Bombay.

The rose-oil is exported in round tinned copper bottles called "kunkoumas, which, when filled, are closed by soldering. The price on the spot per German pound is 120 to 125 thalers.—*Canadian Pharm. Journ., Sept.*, 1872.

Varieties.

Apothecaries.—The word "apothecary" formerly signified any kind of store, magazine, or warehouse, and the proprietors of such places were termed "apothecaries." "It would be a great mistake," observes Beckman, "if in the writings of the thirteenth and fourteenth centuries, where these expressions occur, we should understand under the latter term, 'apothecaries,' such as ours are at present. At these periods, persons were often called apothecaries who, at court, and in the houses of great people, prepared for the table various preserves, particularly fruit encrusted with sugar, and who, on that account, may

* *Cymbopogon* is synonymous with the genus *Anatherum;* the latter is the name used. Both *Anatherum* and *Andropogon* belong to the order *Gramiaceæ* (section *Andropogoneæ*).

be considered confectioners." At the time when this description of people was known as apothecaries, physicians prepared all their own prescriptions, purchasing the herbs from which they were compounded from the apothecaries, who had procured many of them from remote countries. After a time, however, these herb-dealers began to encroach on the business of their patrons, having, by study and vigilance, acquired a knowledge of the healing virtue of many of their commodities; but at what time the preparation of medicine was entirely resigned into their hands, or when they acquired, by a suitable course of study, the right to an exclusive practice in that business, is not known. "It is probable that physicians gradually became accustomed to employ such assistance for the sake of their own convenience, when they found in the neighborhood a druggist in whose skill they could confide, and whose interest they wished to promote by resigning that occupation in his favor."

The first apothecaries, who were by law acknowledged as compounders of medicine, lived at Naples; and the well-known edict of Frederick the Second, granting them many privileges and perquisites, was the foundation of the position which those of our own day occupy. By that edict it was required "that the confectionarii should take an oath to keep by them fresh and sufficient drugs, and to make up medicines exactly according to the prescriptions of the physician; and a price was fixed at which they might vend the medicines so prepared, and keep them a year or two for sale in a public shop." These shops were opened only in certain places; and at first they were fitted up at the public expense, and each had a large garden where the apothecary was expected to rear all British medicinal plants. "The preparation of drugs was becoming always more difficult and expensive. After the invention of distillation, sublimation, and other chemical processes, laboratories, furnaces, and costly apparatus were to be constructed; and it was thought proper that men who had regularly studied chemistry should alone follow pharmacy, and that they should be indemnified for their expenses by an exclusive trade. It would appear that no suspicions were entertained that apothecaries could amass riches by their employment so soon and so easily as they do at present;(?) for they were allowed many other advantages, and particularly that of dealing in sweetmeats and confectionery, which were then very expensive delicacies. In many places they were obliged on certain festivals to give presents of such dainties to the magistrates, by way of acknowledgment.

The first mention made of an English apothecary occurs in the reign of Edward the Third, who, it is said, bestowed, in the year 1345, a pension of sixpence a day on Coursus de Gangeland, an apothecary in London, for taking care of, and attending, his majesty during his illness in Scotland.

About the same time that they were established in England, or somewhat later, they were also established in France and Germany, and of the regulations connected with them in many of the duchies and principalities of the latter country there are some curious records. We shall transcribe one from Beckman:

"In Halle there was no apothecary's shop till the year 1493. Before that period medicines were sold only by grocers and barbers. In the above year, however, the council, with the approbation of the archbishop, permitted one

Simon Puster to establish an apothecary's shop, in order, as stated in the patent, that the citizens might be supplied with confections, cooling liquors, and such like common things, at a cheap rate; and that in cases of sickness they might be able to procure readily fresh and well-prepared medicines. Puster was exempted from all taxes for ten years, but was obliged to furnish two collations in the time of the yearly festivals of eight pounds of good sugar confections, fit and proper to be used at such entertainments."

At the Byzantine court the keeper of the wardrobe had the care, in the sixteenth century, of the portable apothecary's shop whenever the emperor took the field. "It was called 'pandectæ,' and contained antidotes, oils, plasters, salves, and herbs proper for curing men and cattle." What a step have not apothecaries made! How greatly they are advanced in the scale of society and deservedly, for they owe it to their own earnest and honest endeavors after knowledge.—*Good Health*, *Sept.*, 1872.

Adulterations.—The French tribunals are usually severe in punishing adulterations of articles of common use, making not only the manufacturers but the intermediaries responsible for the nature of the goods they sell. The agents of two Belgian starch makers, with several wholesale and retail grocers, have just been prosecuted before the Paris court of correctional police for selling rice starch adulterated in the proportion of from 10 to 24 per cent. of potato flour and plaster of Paris.—*Boston Med. and Surg. Journ.*, *Sept.* 1, 1872.

Efflorescent Salt obtained twelve miles from Denver, Colorado, contains, according to P. Frazer, Jr., sulphate of soda, 63·87 per cent., sulphate of lime, 9·70, water, 21·88, chloride of sodium, sulphate of magnesia, &c., 4·55.—*Hayden's Report on Wyoming,* 1871, p. 187, *from Am. Journ. Science and Arts*, *Sept.*, 1872.

Summer heat of 1872.—The records kept at the Pennsylvania Hospital show the temperature during June and July has been unprecedently high. The mean temperature for June was 76·62 degrees, within three quarters of a degree of the highest ever known since the record has been kept, and for July 82·31, the highest ever recorded. Usually when June or July has been extremely warm, the preceding or succeeding month has been quite temperate, contrary to what has occurred the present summer. In this respect, as well as in the unparalleled heat of July, the present summer has been the warmest on record in our vicinity.

During the month of July, 11·22 inches of rain fell, a quantity never exceeded but once previously, and then by only half an inch. Rain fell on eleven different days of the month, the heaviest fall being on the evening of July 4, and measuring 3·13 inches, while the average rain fall of the month during the past thirty-five years has been only 4·08 inches. During the first six months of the present year 18·24 inches of rain fell, making a total of 29·46 inches, against 28·26 inches during the first seven months of 1871.—*Med. News and Library*, *Sept.*, 1872.

Carmine Lakes.—These very beautiful pigments are prepared from a decoction of cochineal, and not from carminic acid, the animal matter which the insect contains, appearing to be necessary to their production. The mode of preparing the finest qualities is kept a secret by the manufacturers; but I will describe two processes which give very satisfactory results. The first consists in boiling one pound of ground cochineal with two gallons of water, to which has been added one ounce of alum. It is then boiled for three minutes, the liquor is allowed to settle, and, after having been kept for several days, about one ounce of a bright carmine lake is produced. For the alum employed in this process cream of tartar can be substituted. The second process consists in boiling for three hours two pounds of powdered cochineal in thirty gallons of water. To this is added three ounces of pure saltpetre. The liquor is then boiled again and left to settle. The clear liquor is run off, and after two or three weeks yields a fine carmine lake. As these lakes are expensive, they are often adulterated with starch, kaolin, vermillion, etc. The complete solubility of pure carmine lakes in ammonia afford a ready means of detecting these adulterations.—*Crace Calvert, from the Am. Gas Light Journ. and Chem. Repertory, Sept.* 2, 1872.

Orris Root.—At the Pharmaceutical Conference at Brighton, Mr. Henry Groves read a paper on orris root. A small district round the city of Florence seems to be at present the chief, if not the only, source of orris root. The plants yielding it are *Iris florentina*, *I. germanica* and *I. pallida*, and the scraped rhizome is the portion of the plant which occurs in the market as orris root. Large quantities of these roots are used by perfumers, for the purpose of blending with other essences, and it is also largely used for tooth powders, and for the composition of what is commonly known as violet powder. A discussion arose as to whether orris root contains any essential oil. Mr. Haselden stated that he had frequently endeavored to obtain this oil, by distillation, but had failed to do so. Mr. Umney, London, stated that he had distilled many tons of the root, and had obtained the essential oil in the form of a fatty substance, similar to cacao butter. This substance was yielded in very small quantity, and was even more costly than otto of roses; it possessed all the fine aroma of the original root.—*Journ. Applied Science, Sept.* 1, 1872.

New Uses of Cellulose.—Chemists have long known that cellulose resists the action of the most powerful reagents; boiling it with potash, soda, soap, chloride of lime, etc., has no effect. Chloride of aluminum attacks it somewhat; the best solvent has recently been discovered by Schweitzer, which consists of an ammoniacal solution of the oxide of copper or cupro-ammonium, which has the property of completely dissolving cellulose without in the least destroying its chemical or physical properties, as it can be precipitated in a perfectly pure state from the solution. It is proposed to make practical use of this important discovery by acting upon woody fiber, vegetable tissue, paper stock, rags and refuse sea-weed, in a way to prepare a numerous class of objects from them. The solution of woody fiber is accomplished with more or less rapidity, according to the condition of the material; old linen and cotton rags dissolve imme-

diately. Several applications have already suggested themselves to inventors; for example, to render paper impermeable. Sheets of paper are immersed for a few moments in the cupro-ammonium solution, then pressed between rollers and dried. Paper thus treated becomes impermeable even to boiling water, and water-tight bags could be constructed of such material. By multiplying the sheets of this prepared paper and rolling them together, a multitude of objects of value in domestic economy and the arts could be prepared. Another property of the cupro-ammonium solution is to impart greater tenacity to linen and paper. If we plunge a strip of paper, the tenacity of which has been previously tested, into the ammoniacal solution, and press and dry it between rollers, it will be found to have increased as much in strength as parchment paper prepared by immersion in sulphuric acid. Here, again, by employing a number of strips of paper it is possible to form a band nearly as strong as leather, and it is a question whether numerous substitutes for leather could not be made in this way. The discovery of Schweitzer has already been applied to the manufacture of roofing, pipes, water conductors, safety fuses, hats, boats and clothing. We should suppose that the treatment of all kinds of cellulose, wood, grass, linen, cotton, sawdust, etc., as a preliminary step in the preparation of gun-cotton, collodion and dualin, would prove to be of great practical value. Dr. H. Vogel has already shown that precipitated gun cotton affords the best film for photographic purposes, and it is possible that by dissolving cellulose in cupro-ammonium, then precipitating it, and subsequently converting it in the usual manner into tri-nitro-cellulose, or gun-cotton, a very superior article could be obtained from inferior stock. There are various ways for preparing the cupro-ammonium. One is to dissolve sulphate of copper in caustic ammonia on a large scale. Copper turnings can be digested in caustic ammonia with access of air, until a concentrated solution is obtained. Only a concentrated cupro-ammonium solution attacks the fiber, and when the liquid is diluted the cellulose is at once precipitated. The discovery of Schweitzer opens up an important era in chemical manufacture, and will lead to many valuable applications.—*Journ. of Applied Chem., Sept.,* 1872.

Revaccination.—According to a statement made at the Statistical Congress, held this year in St. Petersburg, the total number of deaths from smallpox in the German army during the recent Franco-German war was two hundred and sixty-three. This small mortality is attributed to the system of compulsory revaccination, which every man who enters the army must undergo. On the other hand, in the French army, where revaccination is not compulsory, the number of deaths, as stated by a French authority, was 23,469. This terrible difference, says the *Wiener Medizin. Wochenschr.*, must puzzle the greatest opponents of vaccination.—*Phila. Med. Times, Oct.* 26, 1872.

Death After Taking Chloral Hydrate.—F. Jolly (*Bayer. Aerztl. Intell.-Blatt.*) states that, in the course of two years, during which he has employed the hydrate of chloral in the treatment of the insane, he had met with two cases of sudden death following its use. The dose was, in each case, below the average, and the chloral was chemically pure. The patients, during life, pre-

sented no contra-indications to the use of the remedy. One had taken the chloral at night for four evenings in succession. On the fifth evening, after taking it, the respiration and circulation at once ceased. The necropsy showed anæmia of the brain, acute œdema of the lungs, hyperæmia of the abdominal organs, a perfectly healthy heart and vessels, and dark fluid blood. In the other case chloral had been given twelve days in succession, with the effect of producing sleep after a short stage of excitement. On the thirteenth day the patient died, after some stertorous breathing, a quarter of an hour after the dose. There was here found moderate œdema of the lungs; blood was fluid, but normally distributed; the heart was large and flabby, and its muscular structure was pale, but not friable.—*Med. Record—Nashv. Journ. Med. and Surg., Sept.*, 1872.

Inhalations of Bromine in Diphtheria and Croup.—By Dr. Schutz.—The fact that diptheritic membranes are more readily soluble in a solution of bromide of potassium than in lime-water, or other substances usually employed in the treatment of diphtheria, induced the writer, some years ago, to adopt inhalations of bromine in the treatment of this disease. His success therewith has been so good that he again, in some recent numbers of the "Wiener Med. Wochenschrift," urgently commends it to the notice of the profession. He advises the use of a solution of pure bromine and bromide of potassium, each three-tenths of a gramme, to water 150 grammes. A sponge is soaked in this solution, placed in a tunnel of stiff paper, and held over the nose and mouth for inhalation, just as is done with ether or chloroform, the inhalation being continued for five or ten minutes, and repeated every half-hour or hour. The odor of bromine, as diluted, is very well borne even by infants. The preparation being highly volatile and decomposed by light, must be guarded accordingly. —*Kansas City Med. Journ., Aug.*, 1872, from *Allg. Med. Central-Zeitung.*

The Action of Pepsin on Blood Fibrin.—Dr. V. Willich contributes a long paper to Pflüger's "Archiv" ("The Lancet," May 25, 1872) on the ferments effecting the digestion of fibrin. The digestive fluid he employed was the fresh glycerin extract of the minced mucous membrane of the stomach of the pig. The fibrin was obtained from fresh blood. This was macerated in a solution of hydrochloric acid, containing 0·2 per cent. From the results of his experiments it appears that fibrin absorbs pepsin very energetically; that the process of digestion commences with the formation of a feeble chemical combination between the pepsin and the acid, and that this compound is the really active substance. In regard to temperature, digestion proceeds slowly, even at 40° Fahr., but with the greatest rapidity and energy at temperatures between 95° and 112° Fahr. Higher temperatures than this retarded or altogether prevented the action. For the digestion of a certain quantity of fibrin, definite quantities both of acid and of pepsin are requisite. Meissner's parapeptones and metapeptones are initiatory stages of the action of pepsin on fibrin, and, if the action proceeds, are converted into peptone; but if the amount of pepsin be insufficient, they may remain unaltered.—*Phila. Med. Times, Aug.* 1, 1872.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held October 15th, 1872, Professor Procter in the chair. William McIntyre, in the absence of the Registrar, was appointed Registrar *pro tem.*

The minutes of the last meeting were read, Prof. Procter stated that *Cantharis atrata* (see page 279 of the June number Amer. Journ. Pharm.) should read *Cantharis adspersa*, and as thus corrected the minutes were approved.

A letter was read from Clemmons Parrish, regretting his inability to attend, and stating that he had returned thanks through Dr. Ruschenberger to Surgeon General J. M. Foltz, for the samples of cundurango presented in May last.

An election for Registrar was held; Clemmons Parrish was nominated and Prof. Maisch directed to cast a ballot, when the nominee was declared Registrar for another term.

The Class of 1872–73 were welcomed to the meeting.

Prof. Maisch presented a pamphlet, received for the College from the author, entitled Etude générale et comparative des pharmacopées d'Europe et d'Amérique, by F. A. Werwaest. It is stated in this pamphlet that the United States Pharmacopœia had been first issued in 1850, whereas the first edition was published in 1820, and the work has since been revised every ten years.

Specimens of pepsin, from Prof. Emil Scheffer, of Louisville, were presented, comprising dried pepsin, of which one grain dissolves 100 grains coagulated albumen at 105° F.; saccharated pepsin, one grain dissolving 12 grains; liquid pepsin, one ounce dissolving 1½ drs. of coagulated albumen (Am. J. P., Feb., 1872).

Prof. Procter remarked he had followed Mr. Scheffer's process with success. The stomachs are procured as fresh as possible and, without being soaked in water, are washed and stretched upon a board, when the mucous coat is dissected. The pepsin is probably not chemically pure, and varies somewhat in strength, so that it is necessary to ascertain its digestive power by actual experiment, in order to determine the quantity of milk-sugar necessary for admixture to reduce it to the standard strength.

Mr. W. C. Bakes presented a specimen of Coxe's Hive Syrup, made 22 years ago by Charles Schaffer, of this city.

Prof. Procter presented an herb-press from Mr. Jos. Harrop, of Leavenworth, Kansas, which was exhibited at the late meeting in Cleveland. It is a simple contrivance, by which apothecaries can press their own herbs, thus insuring their good quality.

Prof. Procter exhibited *Cantharis adspersa* from South America, which is the blistering fly referred to at the May meeting. Prof. Maisch stated that the sample of Chinese flies which he had received from Messrs. McKesson & Robbins, of New York, and which he exhibited last May, contains fully one per cent. of cantharidin, and is therefore at least double the strength of the officinal cantharides.

Prof. Procter exhibited gallic acid obtained from ink, and the oleo-resin from *Liquidambar styraciflua*, from Arkansas, collected by his brother after wounding the bark.

Dr. Pile read an interesting paper on a new application of tube hydrometers in taking the specific gravity of liquids. The paper was referred to the Publication Committee *

Prof. Maisch read a communication from Dr. X. Landerer, of Athens, Greece, giving an account of the discovery, 26 years ago, in the plains of Pikermi, of bones of antediluvian animals, among which the following species have been recognized: Mesopithecus pentelicus, Hyæna eximia, Hyæna Cheireti, Canes (diversæ species), Thulassodyctis, Felis Attica, Machærodon cultridens, Histrix Attica, Rhinoceros Schleyermacheri, Rhinoceros pachygnathus, Dinotherium, Sus Erymantheus, Mastodon, Hippotherium gracile (Equus primogenus, frequentissimum), Helladotherium Atticum, Helladotherium Duvernay, Palæotragus amalthea, Palæonyx, Palæorcas, Gazellæ (diversæ species), Testudinum marmorum.

Professor Maisoh exhibited specimens of squill, cut in transverse slices, which have been sent by Mr. James B. Heyl, of Hamilton, Bermuda. Mr. Heyl cultivates the squill, and employs the fresh bulb in preparing the tincture, vinegar, syrup and compound syrup, specimens of which were likewise exhibited. The sample is the red variety of squill, which is considered more efficient than the white. Dr. Pile stated that fresh squill formerly appeared in our commerce, and that the vitality of the bulbs was preserved by keeping them in sand in the cellar. It was suggested that the plant might be cultivated in the Southern States, and a supply of fresh bulbs then easily obtained. In the countries bordering on the Mediterranean, where the squill is indigenous or has become naturalized, the fresh is invariably preferred to the dry article.

Prof. Maisch also showed specimens of sneezeweed, collected by Mr. Chas. S. Brown in Mississippi and Tennessee. The plant, which is very acrid, is considered a deadly poison to horses in the south-western portion of the United States. A comparison with specimens of *Helenium autumnale*, Linn., taken from the College herbarium, and collected near Philadelphia, proved the identity of the different plants, and that the sneezeweed, to which the poisonous properties are attributed, is not *Helenium tenuifolium*, Nuttall, as stated by Dr. J. M. Bigelow.† No informatin has as yet been received that the plant grown in the Middle States is regarded as poisonous.

Prof. Procter stated that mesquite gum obtained in Texas, from Algarobia, is said to have been shipped in some quantity to Europe, for what purpose being unknown.

The meeting then adjourned.

William McIntyre, *Registrar pro tem.*

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The attendance at the lectures in this institution is so large that additional seats had to be provided for. The course was opened on the second of October, the introductory lecture being delivered by Professor Maisch.

* See page 481 of the present number.

† See American Journal of Pharmacy, 1872, July, 306.

The applications for laboratory instruction had been so numerous that the twenty tables are insufficient to accommodate the students, whereupon the trustees of the Alumni Association have ordered twelve additional tables, which will be finished about November 8th.

A number of the students of this College had united during the past summer and met regularly at the College for mutual improvement in their studies. Hearing of the decease of Professor Parrish, the members of this society adopted the following resolutions at a meeting held Sept. 28th:

Resolved, That in the death of the late Professor Parrish this Society and College have lost one of their best friends and supporters.

Resolved, That the esteem and regard in which the memory of our late Professor is held and revered by this Society is of the highest type, and we sincerely mourn his loss.

Resolved, That the high moral character and public worth of our most talented and esteemed friend is worthy of our active emulation.

Resolved, That at the coming Commencement, in March next, this Society as a body wear crape upon the left arm as a mark of respect.

Resolved, That the family and relatives of our lamented friend receive our mort cordial sympathy and heartfelt condolence, and we tender these, the marks of our sincere sorrow, in the hope that they will not be accepted as mere *formal* resolutions, but as the expression of irreparable loss from feeling hearts.

The Massachusetts College of Pharmacy has adopted the *two-class* system, one lecture a week being delivered to the junior and senior classes by each of the three professors. According to the prospectus, the subjects will be divided as follows:

Chemistry.—Junior Class: Physics and inorganic chemistry.
Senior Class: Organic chemistry.

Materia Medica and Botany.—Junior Class: Structural botany; drugs derived from the root, stem, bark, leaf and flower.
Senior Class: Development and morphology of plants; fruits, seeds, drugs without cellular structure, animal drugs.

Pharmacy.—Junior Class: Processes, implements and apparatus; officinal preparations.
Senior Class: Difficult officinal preparations, officinal proximate principles and medicinal chemicals, adulterations and substistutions, extemporaneous pharmacy.

The Maryland College of Pharmacy now requires of all its students a preliminary examination before matriculation. We have not been informed of the educational standard required of the aspirants for matriculation.

A laboratory of analytical chemistry has been arranged and placed in charge of Professor Simon. Students intending to graduate are required to attend the laboratory and also the lectures on analytical chemistry.

At the monthly meeting, held on 10th Oct., 1872, President Prof. J. F. Moore announced Prof. Edward Parrish's death, and made some allusions to the intellectual and social qualities of the Prof., as also his zeal as teacher of Practical and Scientific Pharmacy. On motion, a committee, consisting of Messrs. J. F. Hancock, L. Dohme and E. Eareckson, was appointed to draft resolutions

expressive of the sense of this College. The committee reported the following preamble and resolutions, which were unanimously adopted, and the chairman was instructed to furnish copies of the same to the family of the deceased, and to the Amer. Journal of Pharmacy and Druggists' Circular, for publication.

Whereas, The members of this College have heard, with sorrow and regret, of the death of our co-laborer and friend in the cause of pharmaceutical education and progression, Prof. Edward Parrish, of Philadelphia;

Resolved, That we desire to mingle our sorrows with those of the stricken hearts of pharmacists generally, who mourn the loss which pharmacy has sustained in the sudden demise of Prof. E. Parrish.

Resolved, That we appreciate, with grateful hearts, the services which our friend has rendered as a teacher and promoter of pharmaceutical science.

Resolved, That we express to his bereaved family our sympathy and condolence in this their sad hour of affliction.

Columbia Pharmaceutical Association.—At a special meeting, held October 27, the establishment of a College of Pharmacy was resolved upon, and a number of committees appointed to carry out the project. The title *National College of Pharmacy*, which we understand has been proposed, we sincerely trust may not be adopted. Such a title might be well enough for a business concern; but a *local* society of the national capital has no more claim to be considered *national* than an association located in the remotest corner of the United States, and the adoption of such a title has a savor of presumptuousness which, in our opinion, should be carefully avoided by scientific bodies. The organization of a college, however, seems to meet with so much favor that a considerable sum has been subscribed to defray the expenses of the first year. It is contemplated to commence a course of lectures in the beginning of January, 1873.

California Pharmaceutical Society.—The fourth annual meeting was held on the afternoon of the 9th day of October, President Bauer in the Chair. The minutes of the previous meeting were read and approved. According to the order of business, nominations for officers were next made. Mr. Steele read the report of the Board of Directors, which was an exhaustive document, which for completeness and thoroughness of detail has seldom been presented before a like meeting. Many new subjects were laid before the members; the most important being in relation to the establishment of a college of pharmacy. The report treated on the following subjects: "Condition of the Society," "Pharmaceutical Legislation," "The Inauguration of the College of Pharmacy," "Unofficinal Preparations," "Professional Emoluments," etc.

The annual address of the President was next presented, in which he congratulated the members upon the advance made in numbers and influence by the Society the past year; he touched upon the following topics, devoting a brief space to each: "Meetings of the Society," the "American Pharmaceutical Association," "The San Francisco Pharmacy Act," "The Board of Pharmacy," "The California College of Pharmacy" and "the future of the Society." This report met with the warm approval of the meeting. The reports of the Recording Secretary and Treasurer showed a large increase in the roll of mem-

bers and a healthy state of the finances of the Society. The election of officers being in order, the following gentlemen were appointed to serve the ensuing year: President, W. T. Wenzell; First Vice President, Wm. Simpson; Second Vice-President, G. G. Burnett; Recording Secretary, J. W. Forbes; Corresponding Secretary, H. B. Shaw; Board of Directors, Messrs. Calvert, Searby, Beiderman, Forbes and Steele.

On motion, the thanks of the Society were extended to the retiring officers for the enthusiastic zeal with which they had fulfilled the duties involving upon them.

The annual dinner of the Society took place in the evening; twenty-one members gathered around the festive board; appropriate toasts were offered and responded to by the several gentlemen called upon, and a spirit of harmony prevailed such as will render this occasion to be long remembered by those who were so fortunate as to be present. The members of this Society have cause to be gratified at the position it has taken upon the important subjects relating to the practice of pharmacy upon the Pacific coast, and that it will steadily advance to the exalted position so long occupied by its sister societies of the East will be the earnest endeavor of all of its members.

H. B. Shaw,
Corresponding Secretary.

Tennessee College of Pharmacy.—At a regular meeting of the Trustees, held October 21, Benj. Lillard was elected President, and Joseph J. Hall Secretary and Treasurer. Active measures were taken to commence lectures in the fall of 1873.

Pharmaceutical Society of Great Britain.—At the meeting of the council, held October 2d, it was resolved, unanimously, that the resolution passed in 1862, prohibiting ladies from attending the lectures, be rescinded, and that ladies be admitted to attend, as students, the lecture classes of the Pharmaceutical Society.

On the evening of the same day the first pharmaceutical meeting of the session, 1872-73, was held, many pharmacists and students, and several ladies, being present. Mr. A. F. Haselden, President, occupied the Chair. After the presentation of a number of books to the library, Professors Redwood, Bentley and Attfield reported on the last session of the School of Pharmacy, the examinations and the awards of prizes. The meeting closed with an address, delivered by Mr. William W. Stoddart.

German Apothecaries' Union.—The North and South German Apothecaries' Societies met in Frankfort-on-the-Main, on the 3d of September, and were fused into one national society, the meeting of which was attended by about 270 members. The following gentlemen were elected directors: Dr. Schacht, Berlin, Chairman, Messrs. Wolfrum, of Augsburg, Brunnengræber, of Rostock, Wilms, of Münster, Hartmann, of Magdeburg, Leiner, of Constance, Leube, of Ulm and Brauweiler, of Düren.

A report was made on the prize-essays of assistants and of apprentices, and resolutions were adopted in relation to the position of pharmacists when attending at a university, and to the rank of military pharmacists. The directory was empowered to confer with the Chancellor of the German Empire in regard to the projected liberation of the practice of pharmacy, and to intercede for the interests of pharmacy and the pharmacists in the press and with the members of Parliament.

The subjects of ozone water, narcotic extracts, reduced iron and bismuth were discussed, and resolutions of thanks were passed to the retiring directors and to the local committee.

The next meeting will take place in Cologne, in 1873.

Editorial Department.

Protection against Poisoning.—In our last issue will be found the action of two pharmaceutical bodies on the resolutions* which, originating with the College of Physicians of Philadelphia, have since been passed by several other medical societies, local and State as well as the National Association, while we have not heard of any pharmaceutical society by which the resolutions were approved, although several have given their careful consideration to this important subject. The arguments against the practicability of the proposed plan are well put forth in the report of a special Committee to the Philadelphia College of Pharmacy (see page 467 of last number), and others might be added thereto. To our mind, the plan, if it was carried out by the united efforts of every pharmacist and physician in the country, might be fraught with more dangerous consequences than anticipated, inasmuch as it would have a tendency to educate people into the erroneous notions that every medicine contained in a rough-cornered triangular based bottle is poisonous, and that no medicine in an ordinary vial is dangerous—notions, both of which, according to the letter of the original resolution, are wrong and might be the cause of serious consequences. It seems to us to be far better and far more productive of good, if habits of carefulness were practised in the prescribing and dispensing of poisons; in this respect there is undoubtedly room for improvement by many members of both professions.

It is a pleasure to look at the prescription of the careful physician when ordering poisonous drugs or preparations; then every word is legibly written, the quantities are plainly indicated, the directions for use are not omitted, and either the patient's full name is given or age and sex are indicated in some way, to give the pharmacist some data from which to judge that an overdose has not been inadvertently ordered, or the wrong article directed.

On the other hand, the careful pharmacist will surround the dispensing of potent medicines with effective precautions; he will keep them in a separate place upon his shelves, or in a closet under lock and key; the shape or size of the bottles in which they are kept is different from the ordinary shop furniture,

* See page 284 of the June, and pages 441 and 467 of the October, number of this volume.

which is labelled in a different style from the poison bottle upon which the skull and cross-bones warn of its dangerous contents. Various contrivances have been introduced to fasten the stoppers of poison bottles, and poison cases have been constructed, from which but one bottle at a time can be removed, or where each bottle has its place into which it alone exactly fits. In putting up prescriptions, the weighing and measuring of *every* article or else of every *poisonous* article is witnessed by another clerk; or the prescription is copied *before* it is put up by the same person; or the articles and quantities are repeated from memory to another competent person *after* the prescription is put up. The labels for external medicines are printed or written in red or other striking color, and caution labels or tags are attached to the bottle. Mr. Wm. C. Bakes uses labels with a sanded border, and Mr. H. M. Wilder, in a note to us, suggests the more convenient and cheaper plan of pasting on the bottle a slip of sand paper, which may be rendered more attractive by cutting it in the shape of a star, lozenge or similar pattern.

Every careful pharmacist has adopted one or more of these precautions, or perhaps others not enumerated here, to guard against mistakes, so as to render their occurrence almost impossible, and where they happen in a pharmacy, it will be found that such precautions have been neglected. But to avoid mistakes by the patients or their nurses, it seems to us the plain duty of the physician and pharmacist to educate them to the necessity of never using a medicine without examining the label, and hence for the physician to write directions for using the medicine upon every prescription, and for the pharmacist to carefully copy such directions in full, while at the same time other precautionary measures should not be neglected.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Proceedings of the Maine Pharmaceutical Association at the Fourth and Fifth Annual Meetings, held in Portland. July 18, 1871 and July 16, 1872, and the adjourned meeting, held September 19th, 1871, with the charter, constitution and by-laws, and the code of ethics, roll of members, &c. Portland: Stephen Berry, Printer, 1872. 8vo., pp. 36.

Accounts of the annual meetings were published in this journal in 1871, on page 375, and in the August number of the present year. At the adjourned meeting held September 19, 1871, the principal business transacted was to receive the report of the Committee on the School of Pharmacy. The support promised appears to have been insufficient to warrant the opening of the school. The time of the annual meetings has been changed from the middle of July to the third Tuesday of October.

Transactions of the Georgia Medical Association at its Twenty-third Annual Meeting, held in Columbus, Georgia, on the 10th, 11th and 12th of April, 1872. Atlanta: W. R. Barrow, 1872. 8vo., pp. 134.

The reception of this volume, which contains several interesting papers on medical and surgical subjects, is hereby acknowledged.

Facts of Vital Statistics in the United States, with Tables and Diagrams. Extracts from an address by J. M. Toner, M. D. Published in the circular of information of the United States Bureau of Education for March, 1872.

These statistical tables and diagrams possess considerable interest. A very important portion of the pamphlet treats of the number of children of both sexes under 15 to 1000 females between 15 and 50 years of age. Table III compiles the statistics, in this respect, of the census reports from 1800 to 1860, and the author sees therein evidence of physical degeneracy, but "does not propose to adopt any theory or to attempt to explain this extraordinary condition." In table II, however, in which the census returns of different countries are compared, we find, leaving Sardinia and the Papal States out of consideration, to which States other ages apply, that the number of children is greater for the United States (1694), than for any of the 14 countries and provinces enumerated, with the only exception of Upper and Lower Canada, for which the figures 2019 and 1954 are given, while France is mentioned with the lowest number (1043), and Belgium approaches nearest to the United States with 1572.

OBITUARY.

John Cargill Brough died at Esher, England, on September 7th, 1872, at the age of 38 years. He was born at Pontypool, Monmouthshire, and was a younger brother of the brothers Brough, well known to literature and to the stage. He passed through a strange apprenticeship, type being usually the master, and thus he was thrown in contact with all sorts of people, and intimately knew so many who have made their mark and become distinguished.

The first undertaking that brought him into notice was the editorship of the "Chemist and Druggist," the prosperity of which he strove his utmost to secure. He was also editor of the "Ironmonger," writing the technical details of machinery; sub-editor of "Nature," which he soon had to relinquish; editor of a scientific periodical called the "Laboratory," one of the ablest that has ever been issued and patronized by the most celebrated English and foreign contributors; yet commercially it was a failure and lasted only six months. He was elected as the first editor of the Year Book of Pharmacy; great hopes were entertained that his remarkable knowledge of this subject and skill in abstract and arrangement would have produced an authoritative compendium. These hopes were never destined to be realized, as always sickness gave its inexorable veto and forbade the attempt.

With a tact beyond praise, he endeavored to effect a reconciliation, or rather a mutual understanding, between the Pharmaceutical Society and the druggists of Great Britain, and between their respective mouthpieces, the "Pharmaceutical Journal" and the "Chemist and Druggist."

Quitting the editorial chair and general literature in 1870, he became librarian of the London Institution, a post for which by nature, training and all his antecedents he was specially qualified.

He was never legally qualified as a pharmacist, but circumstances led him into the domain of pharmacy, and his interest in the reform of British pharmacy never abated until the grim messenger closed his eyes.—*Abridged from the Pharm. Journ. and Trans.*

VOL. XLIV.] AMERICAN Dec 7 [NO. XII.

JOURNAL OF PHARMACY,

PUBLISHED BY AUTHORITY OF

THE PHILADELPHIA COLLEGE OF PHARMACY.

EDITED BY

JOHN M. MAISCH.

FOURTH SERIES.] DECEMBER, 1872. [VOL. II, NO. XII.

CONTENTS.

NOTICE TO READERS.

This Journal is devoted to the advancement of Pharmaceutical knowledge and to the advocation of a more thorough education and practical training for all persons engaged in preparing and dispensing medicines, drugs and chemicals. Intended for the benefit of the apothecary, druggist and physician, it merits their patronage and support. It is published Monthly, in numbers containing forty-eight pages. Price, $3.00 per annum, *in advance*. Single numbers 30 cents.

All papers for publication, and other communications for the Editor, should be addressed to John M. Maisch, College of Pharmacy, 145 North Tenth St, Philadelphia.

All letters relative to subscriptions, advertisements, or to the distribution of the Journal by mail, or otherwise, should be addressed to Mr. Henry H. Wolle, Business Editor, at the Philadelphia College of Pharmacy, 145 North Tenth St., Philadelphia, whose office hour is from 10 to 11 o'clock daily.

An ADVERTISING SHEET is appended to each number of this Journal, in which advertisements of new preparations, apparatus, business cards, books, college and other school notices, applications for and by clerks, for the sale and purchase of stores, etc., etc., will be inserted at the rates noted below; but a proper discrimination will be observed in relation to the character of advertisements.

NOTICES OF MEETINGS and other information specially for the Members of the Philadelphia College of Pharmacy, and notices from the Publishing Committee, will be found on the second page of the cover.

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THE

AMERICAN JOURNAL OF PHARMACY.

DECEMBER, 1872.

CASTOR-OIL SOAP IN SOAP LINIMENT.

By L. E. Sayre.

I think none of my pharmaceutical brethren will deny but that the process for the preparation of our linimentum saponis can be improved upon. It is almost useless to point out the imperfection, for all who are familiar with it have experienced the common difficulty attending its preservation during the winter season.

Castile soap contains too large a percentage of insoluble constituents (chiefly palmate and stearate—the old margarate of soda) to be a good article; and yet it is the only commercial soap at all adapted to the purpose, the others being mostly made from solid fats.

I therefore suggest, to obviate the annoyance we are called upon to endure by the Pharmacopœia of 1860 (until we see what the revision of 1870 may bring forth), the substitution of castor-oil soap, which is easily prepared by boiling castor-oil with solution of caustic soda until a thick mass is formed which can be drawn into threads, then a strong solution of salt is added, when the soap separates as a coherent cake, which may be laded out into paper-box lids, &c., to dry.

My attention was directed toward this soap, some time ago, by an article published in the "American Journal of Pharmacy," 1871, p. 165, copied from the "London Pharmaceutical Journal," in which Mr. F. M. Rimington very highly recommends its introduction into the list of pharmaceutical preparations as a pure medicinal soap, and using it as the medium or adjunct for administering other active remedies. Its physical properties, he says, are in its favor. It has a

clean, yellowish-white color, free from smell, and soon becomes hard and pulverulent. To this I may add, it is quite soluble in cold alcohol, its spirituous solution remaining unchanged even at a very low temperature.

To test its merits, a preparation of soap liniment was made by substituting the Castile by it, and when subjected to low temperature (32° F.), it remained perfectly transparent, while the officinal preparation became quite thick.

Evidently a soap richest in oleic acid and containing the least percentage of stearic and palmitic acids is the best for making liquid saponaceous preparations. Castor-oil, it seems to me, furnishes us one coming nearest to this qualification of any we possess.

NOTE.—In his thesis, "Saponification of Castor-oil," Mr. Charles H. Clark advocated the substitution of a soda soap of this oil for Castile soap in soap liniment. Samples of the soap, and of soap liniment and soap plaster made with it, have been in the possession of the Philadelphia College of Pharmacy for the last ten months.—EDITOR AMER. JOURN. PHARM.

AROMATIC SYRUP OF PHOSPH. IRON, QUINIA AND IGNATIA.

By C. G. Polk, M. D.

℞.	Ferri Sulphatis Purificati,	ʒxv,
	Sodæ Phosphatis Purificati,	℥iii,
	Quiniæ Sulph.,	ʒvi,
	Acidi Sulph. Dil.,	q. s.,
	Aquæ Ammoniæ,	q. s.,
	Tinct. Ignat. Amaræ Sat.,	℥iii,
	Sacchari Albi,	℥xx,
	Acidi Phosphor. Glacial.,	℥ii,
	Aquæ Distil.,	℥xv,
	Alcohol. Deod.,	℥iv,
	Tinct. Aurant. Essent,	℥i,
	Ol. Cardamomi Sem.,	
	Ol. Carui,	*aa* gtt. xx.

Dissolve the sulphate of iron in three ounces of boiling water, and the phosph. soda in five ounces of boiling water. Mix the solutions in a porcelain bottle with a tight-fitting stopper, and instantly insert the stopper so as to exclude both light and air. Set aside, that double decomposition may ensue and the phosph. of iron be precipitated.

It is nearly white. Throw this on a fine linen filter, and place in a porcelain funnel, and pour on water, of the temperature of 180° F., until the washings cease to be affected by chloride of barium. Then rapidly fold up in the linen filter and subject to pressure in a press until quite dry, and dissolve in the solution of phosphoric acid made by dissolving the monobasic phosphoric acid in the distilled water. Dissolve the sulph. of quinia in six ounces of water with dil. sulph. acid, and precipitate by slowly adding ammonia water until the alkaloid is thrown down. Then carefully wash and dissolve in the solution with the iron. Mix the alcohol and saturated tincture of ignatia together. Rub the oil of cardamom, oil of caraway and essential tinct. of orange together with the sugar; and, lastly, mix all the ingredients and dissolve without heat.

The saturated tinct. of ignatia is made by percolating 16 ounces of alcohol through 24 ounces of finely powdered ignatia bean. This syrup varies materially from the syr. phosph. iron, quinia and strychnia, and, while less pharmaceutically perfect in its transparency, keeps much better.

Philadelphia, Nov. 18, 1872.

THE NEED OF PRACTICAL INFORMATION IN OUR PHARMACEUTICAL PUBLICATIONS.

By Wm. L. Turner.

I do not wish to be understood as denying the value and importance of strictly scientific information, or as under-rating the fact, that a thorough knowledge of a subject is the best possible guarantee of the valuable results of practical operations; but I believe it is the opinion of a very large proportion of the patrons of our pharmaceutical publications, that they are getting so entirely scientific in character, that practical details and observations are, if not entirely lost sight of, treated in such a manner as to tend to degrade them far below their actual importance. Indeed the tendency of late in acquiring as well as imparting a knowledge of pharmacy is entirely too theoretical. To such an extent is this true, that it is by no means a rare thing to find persons engaged in the vocation, eminently well qualified theoretically, entirely at a loss when called upon to carry out some of the simplest details of a practical operation. In very many cases, either a lack of interest in, or a contempt for, those practical details by which alone even the technical and strictly scientific results of

pharmacy can be successfully accomplished, degenerates into careless manipulations and frequently slovenly habits.

My purpose, however, in this article is not to discuss the methods of teaching pharmacy so much as to call attention to the tendency which perhaps will in no small degree account for the sparcity of practical information given in our publications.

If we peruse a journal devoted to mechanics, we do not find it filled entirely with new inventions and novel appliances. On the contrary, while due attention is paid to these subjects, the greater part is devoted to the development of new and improved processes, by which familiar results are more easily arrived at, by which complex combinations are simplified, and the results of personal experiences of modes and methods for economizing time, labor and material. Their principal value and advantage to the mechanic is in the fact that he is made familiar with the methods adopted by others, so that he is enabled to add to his stock of knowledge the information derived from their experience, and is by this means stimulated to additional exertion, so that he in turn adds to the common stock rather than follow in the beaten track, which he would otherwise in all probability regard as containing the sum of all knowledge. But it may be said that pharmacy differs from the mechanic arts in that the one is eminently practical while the other is not; but I answer that, all other things being equal, he is the best mechanic who is the most familiar with the scientific principles involved in his branch, and he is the best pharmacist, all other things being equal, who is the most skilful in the practical operations involved in his profession. A chemist is not of necessity a pharmacist any more than a philosopher is a mechanic.

But does pharmacy differ so much from the mechanic arts as is generally supposed? I think a careful view of the matter will clearly demonstrate that there is no profession or vocation wherein mechanical manipulations and a knowledge of the principles involved are so thoroughly blended or so inseparable as that of the pharmacist. Are not the divisions into pills and powders, triturations, percolations, contusions, suspensions, solutions, &c., all merely mechanical operations in which practical experience plays the principal part as teacher? Can any amount of scientific information impart a knowledge of dividing a given quantity into any number of equal parts, or determine what degree of fineness of a certain article will best secure its

successful percolation? or who does not know that even long experirience will fail to impart a knowledge of how to spread a good plaster, unless in possession of that rare qualification sometimes called a "mechanical turn?"

Much has been done toward simplifying the various processes conducted upon a large scale, and I apprehend that a large proportion of the manipulations which have been transferred from the pharmacy to the manufactory are in great measure due to this fact, and such is the tendency of late in this direction that an entirely new branch of business has grown up, that of the manufacture of pharmaceutical preparations; and, strange to say, while all who have embarked in this branch profess, on flaming handbills and in elaborate letter-press circulars, that their preparations are, in all cases, of officinal or, as they sometimes modestly put it, of standard strength, they find it necessary to caution all persons "to avoid fraud," or "to be sure of obtaining reliable articles, please specify our own make." A caution so generally indulged in leads one naturally to suppose that they either know from experience the necessity of it, or seek to inspire greater confidence in themselves by implying the unworthiness of it in others, in either case a sad comment upon their professional honesty.

There is, no doubt, a tendency to multiply intricate and complex combinations, and a demand for such preparations, which in a degree renders it necessary that some means should be afforded to relieve those engaged in what might be called legitimate pharmacy. There is no reason, however, why pharmacy should be diverted from its proper channels, or degenerate into a mere vocation for the vendition of crude drugs and unreliable preparations.

I do not pretend to say or believe that this tendency is the natural or necessary result of either teachers of pharmacy or pharmaceutical publications, nor do I wish to be understood as denying that there may be and are a great many questions deeply interesting to many of the readers of our publications, which have neither directly or indirectly any bearing upon pharmacy. It is far from my intention to find fault with what is, but rather with what is not, written.

No doubt there are a great many persons who would take a deep interest in the question of whether the poisonous properties of Rhus toxicodendron were due to an acid or an alkali, or manifest great interest in an elaborate recital of experiments on the action of sunlight

upon honey, to determine the question of why bees work in the dark? but these and kindred subjects possess about as much interest to a vast majority of the readers of our publications as the precession of the equinoxes would to those who assume to manage our primary elections.

What we want, or rather what is needed, is the diffusion of more practical information. The late Prof. Parrish, in his admirable work on Practical Pharmacy, has done much in this direction, by presenting in detail the results of his experience and observation, and in rendering practical many of the formulas of the Pharmacopœia, many of which, if not vague and incoherent, are calculated to produce variable results, depending greatly upon their manipulation. But, however much may have been done by him and others, it cannot be said either that the subject has been exhausted, or that practical operations have become less important.

I cannot but think that a new impetus would be given to the circulation of, and an extended field of usefulness be opened to, our publications, if this matter of practical information could be made to stand out more prominently upon their pages.

I leave the question, however, with those to whom it properly belongs, believing that I have expressed an opinon entertained in common by a large proportion of those who patronize pharmaceutical publications.

Remarks by the Editor.—In accepting the above article for publication, we desire to say that we have neither inclination nor intention *to find fault with what is, but rather with what is not written.* It may seem, according to the author's views, a waste of time and energy, as far as pharmacy and medicine are concerned, to determine the active principle of Rhus toxicodendron, or study the influence of sunlight upon honey. It would follow, then, that the discovery of the active principles of opium, nux vomica, aconite, &c., had been of no material influence upon pharmacy, and that it was quite unimportant for the pharmacist to be familiar with the influence exerted by light upon volatile oils, chloroform, santonin, some silver salts, &c.,—propositions and deductions which we cannot endorse, and which we feel confident the vast majority of our readers will not accept. But we believe with the author that many practical details and experiences, gained in the daily practice of our vocation, deserve to be made known; and we further believe, that since the knowledge of the pharmacist of the

present day is the result of the accumulated experience of our predecessors and some cotemporaries, that it is the duty of every one to assist in still further developing pharmacy, by making known his observations, and we invite the author, as well as all others interested, to communicate them to this Journal, for the benefit of the profession generally.

PATENT MEDICINES AND PRIVATE FORMULAS.

By James W. Long.

The present epidemic of so-called patent medicines is destined, unless checked in some manner, to become a standing curse, both to the profession of medicine and the public. P. T. Barnum never made a truer remark in his life than when he said, "The American people are fond of being humbugged;" for the avidity with which they swallow these nostrums proves this to be true.

The standing cry of the empiricists is, "Don't believe the doctors; they are afraid we will ruin their practice by depriving it of its secrecy, and making things plain to the public."

The druggist, who stands between the two, can readily see how false this is. He is necessarily compelled to keep these things, but if he is conscientious and has a proper professional pride, he is not bound to recommend them, and we would respectfully suggest that with them rests the remedy.

The writer of this article has frequently been thrown in contact with these patent medicine venders. They invariably have one story, that is, that their medicine is superior to all in the market, and that they have at great expense procured a *private formula.* We always make it a rule to first examine their packages, and if we meet with the almost inevitable "Entered according to act of Congress," etc., we immediately become suspicious of them.

A very good rule is to ask them pointedly, what ingredients their medicine is composed of; if their dose is a teaspoonful, how much of this and how much of that do you put in a teaspoonful. The general answer is that they do not feel at liberty to tell, but should they do so, in ninety-nine cases out of a hundred, a computation of the wholesale price of these ingredients, the menstruum, bottle, stamp, wrapper, and a moderate per centage for work, will hardly admit of its being sold at any profit to them at their jobbing rates.

The fact that some of these preparations possess superior excellence, cannot be doubted, but a majority of these make no secret of their formula. (? Editor.)

That the profession are prejudiced against them is true; but only for two reasons. One is, they do not know what they contain, and consequently would be guilty of criminality in either recommending them or prescribing them; the other is, they cannot be expected to acknowledge that any one man is sufficiently endowed with prescience or omniscience, so as to know more than the careful trained, hard read and faithful school of medicine.

The rage for private formulas is increasing, we might say, daily, and has reached even the public. It was only the other day a man came to our counter, and informed us he had a private receipt for curing gonorrhœa, for which he had paid twenty-five dollars, and which he wished to have filled. For the benefit of the public we give it:

℞

Balsam Copaiva, . . .	10 cents worth.
Sweet Spts. Nitre, . . .	10 cents worth.
Tinct. Cubebs, . . .	15 cents worth.
Tinct. Cantharides, . . .	5 cents worth.

M. S., one teaspoonful three times a day before meals.

We kindly explained to him the difference of prices current, the utter absence of quantities, etc., and he went away minus his ten and and ten and fifteen and five cents worth of sovereign cure for gonorrhœa.

We will close this by a few formulas we have filled, which we are confident have merit in them. One is much used in the lumber camps of Michigan, among the lumbermen, for private diseases.

℞

Balsam Copaiva, ...	fl. ℥ ss.
Sweet Spts. Nitre, ...	fl. ℥ ss.
Gum Acacia, ...	℥ ss.
Pulv. Cubebs, ...	℥ ss.
Venice Turpentine, ...	fl. ℥ ss.
Pulv. Podophyllum, ...	℥ ss.
Gin, q. s. ft.	fl. ℥ xii.

M. Sig., teaspoonful three times a day.

The following is an excellent wash for cleaning dandruff from the hair, and cleaning the sealp.

℞

Sapon. Castil., finely shaved, one teaspoonful.
Aquæ Ammoniæ, ... f. ʒ i.
Alcoholis, ... fl. ℥ v.
Aquæ Coloniensis et Spiritus Myrciæ in partes
æqualles, q. s. ft., ... fl. ℥ viii.

This should be poured on the head, followed by warm water (soft water), the result will be on washing a copious lather and a smarting sensation to the person operated on. Rub this well into the hair. Finally rinse with warm and afterwards with cold water. If the head is very much clogged with dirt, the hair will come out plentifully, but the scalp will become white and perfectly clean. This is for a cleaner of the hair. Should the hair continue to come out on combing (which, however, will not generally happen), use the hair restorative given by Prof. Parrish, on p. 312, third edition of Parrish's Pharmacy. As there is more than one on that page, we take the liberty of reproducing it here:

Take of
Castor Oil, ... f. ℥ vi.
Alcohol, ... f. ℥ xxvi.
Dissolve, then add
Tinc. Cantharides (made with strong alcohol), f. ℥ i.
Ess. Jessamine (or other perfume), . fl. ℥ iss.
M

Both of these preparations have been tried, and the result has been a clean scalp, a thorough removal of decayed hair, followed by an increased growth of healthy, soft hair.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Ferrous Mannate.—Under this name a ferruginous preparation is proposed by Mr. Ghysen, which is of a green color, inalterable in the air, insoluble in water, but readily oxidized when diffused in this liquid, which then acquires a yellow color. It is administered in doses of a few centigrammes to one gramme, in the form of powder or pills. The following process is recommended:

75 grm. crystallized sulphate of iron are powdered, intimately mixed with 100 grm. of flake manna, and triturated with 80 grm. of

ammonia water of 22° B., until a homogeneous mixture is obtained. 130 grm. 94 per cent. alcohol are now added in small quantities; the mixture soon separates into a soft mass and a supernatant ammoniacal liquid which is rejected; the residue is again washed with 130 grm. alcohol, then rapidly dried and powdered, when it weighs 125 grm.—*Bull. de la Soc. Roy. de Ph. de Brux.*, 1872, *No.* 10.

Pills of ferrous oxide.—W. Kirchmann has, for the last ten years, prepared the following pills, which have been used with favorable results by several physicians:

℞.

Ferri sulphatis, ...	120 grains.
Magnesiæ ustæ, ...	20 "
Glycerini, ...	15 drops.

M. ft. pilul. No. 60.

The pills are well adapted for sugar coating; placed in water, they dissolve at once, leaving ferrous oxide behind. Ferrous and magnesium sulphate containing the same amount of water of crystallization, the above formula yields a good mass without any further addition. The glycerin prevents the magnesia salt from drying, the fine crystalline mass of which envelops the ferrous oxide so completely as to prevent all oxidation, even when kept for years.—*Archiv d. Ph.*, 1872, *Sept.*, 231.

Colocynth seeds, as an article of food, are mentioned in Pereira's Elements of Materia Medica,* upon the authority of Captain Lyon. Dr. Nachtigal has lately given an account† of his sojourn among the Tibbus, living in the mountainous country of Tu (17° to 18° longitude east of Greenwich, 18° to 20° N. latitude), and described their mode of preparing colocynth seeds for food. They free the seeds from the bitter pulp by treading upon them enclosed in strong bags; the seeds are then rubbed upon a smooth surface of rock, together with the ashes of camel's dung, with a rounded stone, and the testa is then separated from the kernel by winnowing; the kernels are heated to boiling, then washed with cold water, dried and powdered and eaten with dried dates. Professor Flückiger, in examining the seeds found in the testa mucilage, which is precipitated by acetate of lead, incompletely by alcohol and not affected by alcohol; also a bitter

* American edition, 1854, p. 739.

† Zeitschr. d. Gesellsch. f. Erdkunde zu Berlin, v (1870), 216.

principle, on account of which he considers the rejection of the seeds in making the officinal extract, as improper. The fixed oil obtained from the kernel (16·94 per cent. of the seed), is thick, does not congeal in winter, has a bland taste, and hardens slowly when exposed to the atmosphere in thin layers. For the kernels alone, Dr. Flückiger estimates the fixed oil to amount to about 48 per cent., and the soluble and insoluble albumen to about 18 per cent., so that their value as an article of food is readily explained.—*Ibid.*, 235–247.

Hydrocyanates of the alkaloids.—Professor Flückiger has treated solutions of the salts of berberina, quinia, strychnia and morphia with cyanide of potassium, and found in all cases the precipitate to consist only of the alkaloid, entirely free from hydrocyanic acid. The freshly precipitated alkaloids were diffused in water and hydrocyanic acid passed through the mixture without effecting solution; if the alkaloids are dissolved in alcohol and the solution saturated with hydrocyanic acid, the pure alkaloids are obtained on evaporation, and the author concludes, therefore, that hydrocyanates of these alkaloids do not exist.—*N. Jahrb. f. Pharm.*, 1872, *Sept.*, 138–140.

Detection of water and alcohol in ether.—Prof. R. Bœttger agitates equal volumes of bisulphide of carbon and ether, which yield a clear mixture if the ether is anhydrous; a minute quantity of water renders it turbid and milky. A small piece of hydrate of potassium immersed in ether is covered, after 24 hours, with a yellowish film, and the liquid acquires a yellowish color if alcohol be present.—*Ibid.*, 154, from *Jahresb. d. Frankf. phys. Ver.*

Preservation of Tincture of Opium.—Laudanum, which has been filtered clear, gradually separates a deposit if kept in a cool place, which, at a slightly elevated temperature, gradually redissolves. Tinctures of opium ought therefore be kept at the ordinary temperature, or if they became turbid in a cool place ought not to be filtered until they have been kept for some time in a warm room.—*Ibid.*, from *Apoth. Ztg.*

Artificial Conia.—Hugo Schiff has found that artificial conia prepared by him,* is merely isomeric but not identical with conia, and proposes the name of paraconia for it.—*Pharm. Zeitung*, 1872, *No.* 83.

Persian saffron.—Dr. Hager has received, under this name, samples in the form of agglutinated cakes possessing a fatty odor. They

* American Journal of Pharmacy, 1871, p. 161.

contained few stigmas of crocus, but consisted mainly of narrow yellow petals saturated with a thick oil, which was readily dissolved by ether. This so-called saffron is easily recognized by its imparting a yellow color to petroleum ether, which is not colored by true saffron. —*Pharm. Centr. Halle*, 1872, *No.* 40.

Detection of morphia in quinia.—Several fatal cases of poisoning by quinia containing morphia, having of late occurred in Europe, the Schweiz. Wochenschr. f. Pharmacie proposes the following test, which is with slight modifications also recommended by Pharm. Centr. Halle: 0·1 grm. ferricyanide of potassium is dissolved in 15 grm. water; 3 drops of this solution are mixed with 16 drops of a mixture obtained from 12 drops solution of ferric chloride with 50 grm. of water. The reagent is mixed with a drop of the quinia solution, which, if pure, scarcely affects it; but if containing only one ten-thousandth morphia, a distinctly blue coloration is at once produced, and a precipitate of Prussian blue if a few drops of morphia solution are added. The absence of all coloration is proof of the absence of morphia. A blue color or precipitate, however, may be produced by all deoxidizing substances, and a further examination is necessary.

Acetate of iron in scales may be obtained if a solution of the salt is evaporated upon glass plates in a dark place at a temperature of 15° to 17° C. (59° to 63° F.) It is of a deep chestnut brown color, dissolves readily and clear in water, and must be kept in a dark place. —*Pharm. Centr. Halle*, 1872, *No.* 42.

Adulterated quinia.—J. Biel has met with sulphate of quinia, pretending to be of German manufacture, which was adulterated with 10 per cent. of anhydrous sulphate of soda.—*Chem. Centr. Bl.*, 1872, *No.* 40, from *Pharm. Zeitschr. f. Russl.* xi, 367.

Preparations of Eucalyptus globulus.—L'Union Pharmaceutique, 1872, September, publishes the following formulas:

Syrup of eucalyptus.—	Distilled water of eucalyptus,	500 p.
	Sugar, ...	950 p.

Dissolve without heat and filter.

Tincture of eucalyptus.—	Eucalyptus leaves, dried and cut,	1 p.
	Alcohol of 80 per cent. .	5 p.

Digest for six days and filter.

Wine of eucalyptus.—Eucalyptus leaves, dried and cut, 30 p.
Alcohol of 60 per cent., . . 60 p.
White wine, ... 1000 p.

Macerate the leaves in the alcohol for 24 hours, add the wine, macerate for ten days, express and filter.

Extract of eucalyptus.—Eucalyptus leaves dried and cut, 1000 p.
Water, ... 5000 p.

Obtain by distillation the volatile oil. Of the residue in the still prepare an aqueous extract, which treat with 1000 p. of alcohol of 60 per cent., filter, concentrate the alcoholic liquid to the consistence of an extract, to which, while cooling, add the volatile oil and mix intimately.

Detection and estimation of Ground-nut oil in olive oil.—Renard.—10 grams. of the oil are saponified, the soap is decomposed by HCl, and the fatty acids resulting are dissolved in 50 c. c. of 90 per cent. alcohol, and precipitated with acetate of lead. The precipitate is exhausted with ether to remove the lead oleate, the solid fatty acids obtained by boiling the residue with HCl and cooling, are dissolved in 50 c. c. alcohol of 90 per cent., and cooled. If ground-nut oil be present, abundant crystals of arachidic acid will form in the liquid. These may be removed and washed, first with alcohol at 90 per cent., and then with 70 per cent., and then dissolved in boiling absolute alcohol, received in a tared dish, evaporated to dryness and weighed. Since pure ground-nut oil contains 4·5 to 4 98 per cent. of arachidic acid, it is easy to calculate the amount of this oil present. The method is capable of detecting an adulteration of even four per cent.—*Amer. Chem.*, *Oct.*, from *Compt. rend.*, *No.* 23.

A NEW FILTER.

By R. Rother.

For most pharmaceutical purposes the ordinary plaited filter meets all indications. But for analytical operations the plaited filter cannot be successfully applied. The numerous folds, while favoring the rapid transmission of liquids, expose too much surface for the convenient collection of precipitates, and at the same time greatly and seriously interfere with their washing. The plain filter is the only practical form for analytical uses, but as it exposes only half as much surface as the plaited filter, the passage of the liquid will naturally be

slower; but a very fatal objection to the plain filter is the superfluous fold which in two thicknesses lies under one-half the extended surface of the filter. The interposition of these two extra layers compels the liquid to pass through three thicknesses of paper on the half side of the extended filter, whilst the other half side presents only a single thickness. It is evident that the two hidden layers are a very appreciable impediment to the current, aside from the more important fact that the liquid will traverse this side less rapidly than the other, and thus occasion an imperfect washing of the precipitate, or at least prolong the operation beyond reasonable limits. The writer, recognizing the force of this objectionable feature, resorted to a very simple modification of the plain filter, which, while saving fifty per cent. of the paper, removed all the deleterious defects of the old form. This new filter practically presents but a single thickness of paper to penetrate, at the same time preserving an even surface, equal in all other advantages to the plain filter. The strength and general security of the new filter has been thoroughly tested, and has not failed in a single instance. The filtrations are more rapid than with the usual form, and the absence of the superfluous half sheet admits of a more rapid drying, which is an additional gain of the new filter. The most gelatinous, as well as the most compact and heavy precipitates were collected with it from strongly corrosive liquids with the greatest ease. Its particular advantages for analytical operations are unsurpassed.

To make the new filter, cut the circular disc of filtering paper in two through the line of its diameter, take either half disc and fold it across the line of the radius, then turn down the double edge of the cut side and fold it over several times—finally, run a hard, smooth surface along the seam thus produced, to compress it, and spread the finished filter into an appropriate funnel, first moistening it with water before the liquid to be filtered is poured in.

In this connection the writer would suggest a substance of great utility in a majority of analytical operations. It is the so-called "iron cuts." This material is in regular pieces an eighth of an inch long, with very oblique bases, and is apparently cut from a very fine species of flattened wire similar to that from which card teeth are made. It is originally sold as an improvement on iron filings for pharmaceutical purposes. The writer, however, has employed it with great success for its mechanical effects in analytical manipulations, for which purpose it is far superior to sand or iron filings. Its cleanliness and

compact nature especially recommend it. It completely replaces the sand bath in every particular. Among its numerous advantages, it does not adhere to apparatus, which is an exceeding annoyance with sand or iron filings. Funnels holding filters with precipitates to be dried can be partially immersed in this material, and the drying speedily effected. It is a valuable adjunct to the water bath for utilizing heat.

Thus, any convenient vessel can be partially filled with it, and then water poured on so as either to reach slightly above the surface, or fall below it. Heat is then applied, and upon this support evaporating dishes can be placed, containing liquids, or filters with precipitates. In this case a special advantage is secured by using an evaporating dish containing the material dry, for the purpose of drying precipitates and other substances, which must not be heated above 212° F. The funnel is then partially submerged in the cuts contained in the evaporating capsule, which is in its turn heated by the mixture of cuts and water in the other vessel. By this procedure immense effects are obtained.—*The Pharmacist, Oct.*, 1872.

JAPANESE WAX AND ITS EMPLOYMENT IN PHARMACY.

By Dr. C. Roucher, Pharmacien Principal de Première Classe.

The vegetable wax known under the name of Japanese or Chinese wax is produced by the *Rhus succedaneum.* It is harder than ordinary wax, but much more fusible, the point of fusion indicated by various authors varying from 40° C. to 42° C. It is white, with a slightly yellowish tint, has a feebly rancid smell, and is more friable than beeswax.

As this vegetable wax is now much used in pharmacy, the author has sought to determine the exact point of fusion, and for this purpose examined two specimens, which yielded exactly similar results. This he did by using very thin closed tubes, 15 millimetres wide, in the lower third of which the substance was spread in a uniform layer. The tubes were then plunged into water at various temperatures, and the points noted of opacity, semi-transparence, complete transparence and running against the sides of the glass.

The results obtained with the Chinese wax were as follows: At from 40° C. to 45° C. the wax remained opaque, provided that the temperature was raised one degree at a time; from 45° C. to 50° C.

it became more and more transparent, without becoming mobile; at 53° C. it was transparent and nearly melted; at 54° C. it was completely fused. If the wax be rapidly raised to a temperature sufficiently above its melting point, and, after cooling, be plunged into water at 42° C., it melts into a transparent liquid. So that this wax has two melting-points—42° C. and 54° C.—separated from each other by twelve degrees, the highest being attained when the temperature is slowly and progressively raised.

Japanese wax is not the only substance presenting such anomalies in fusion and solidification, since, according to M. Duffy, natural stearin under the influence of heat undergoes three distinct modifications, which are produced in a similar manner by heating it beyond the melting-point and then cooling it. The same phenomenon is noticed in monomargarin and the palmitins.

To ascertain whether the wax operated on was constituted by a mixture of two or more substances, the separation of which might influence the phenomenon of fusion, the author dissolved a portion of it in boiling 90° alcohol. Upon cooling, the greater part of the wax separated; this, dried for some days in the open air, still contained a considerable quantity of water, which could be driven off by heat. Deprived of its water, it presented exactly the same points of fusion, 42° C. and 54° C., and comported itself between these two extremes in the same manner as that which had not been treated with alcohol. Beeswax offers nothing similar; two specimens, one white and the other yellow, melting at the single temperatures respectively of 62·5° C. and 64° C.

The introduction of Japanese wax into pharmacy, and its substitution for beeswax, suggested the following experiments as to the relations of the points of fusion of cerates prepared with these two substances, both being used in the proportion of 10 parts of wax to 35 parts of olive-oil:

Japanese Wax and Olive-Oil.—At 30° C. it commenced to melt, but quickly stopped and became opaque and solid on the sides of the tube. From 32° C. to 45° C. the cerate, semi-transparent, ran slowly and sluggishly. At 46° C. it melted easily into a transparent mobile liquid. In this state, if heated to 50° C., and after allowing it to spread in a thin layer and cooled, it was plunged into water at 32° C., it melted into a transparent syrupy liquid, accumulating at the bot-

tom of the tube. Raised again to 50° C. and placed in water at 30° C., it became transparent, but only ran slowly. Upon repeating the operation with water at 28° C., it became transparent, but did not run, and gradually resumed its opacity. This showed that by the addition of the above proportion of olive-oil to Japanese wax, its highest melting-point was lowered eight degrees—from 54° C. to 46° C.—and its lowest ten degrees—42° C. to 32° C.—the cerate, like the wax contained in it, having two melting-points, which are separated by fourteen degrees.

White Beeswax and Olive-Oil.—At 39° C. it commences to lose a little of its opacity; from 42° C. to 52° C. it becomes more and more translucent; at 54° C. transparent; at 56° C. runs slowly; at 57° C. it runs easily. So that a mixture of olive-oil with beeswax in the proportions indicated, lowers the melting-point seven degrees. Just as there is a difference of ten degrees between one of the melting-points of Japanese wax and that of beeswax, there is a difference of ten degrees between those of the two cerates.

The observation of the melting-point alone would not be sufficient to distinguish between cerate made from vegetable wax and that from beeswax, as the melting-point might depend upon the proportion of olive-oil present. But the existence of only a single point of fusion in beeswax might be a useful indication as to the presence or absence of Japanese wax, or probably of margarin or stearin. A cerate made with beeswax may also be distinguished from one made with Japanese wax by the action of a strong alcoholic solution of caustic potash, which dissolves entirely, even in the cold, a cerate made from the vegetable wax, but only dissolves very incompletely one made from beeswax.

It will thus be seen that, from a pharmaceutical point of view, the effect of substituting Japanese for beeswax, in medicaments having wax for their base, is a notable lowering of their melting-point; and a cerate made of the proportions indicated above would melt at the temperature of the human body, the mean of its two melting-points being about 37° C. or 38° C. It will, therefore, be evident that such a substitution should not be made without the greatest care.—*Pharm. Journ., Lond., Aug.* 17, 1872, from *Journal de Pharmacie et de Chimie* [4], vol. xvi, p. 20.

BOTANICAL ORIGIN AND CHARACTERS OF THE OFFICINAL RHUBARBS.

By the courtesy of Dr. J. Léon Soubeiran we have been favored with the following extracts from a communication made by Professor Baillon, in the recent session of the French Society for the Advancement of Science, held at Bordeaux.

The fine officinal rhubarbs which are known by the names of Russian and Chinese rhubarbs, appear to be the product of a single botanical species, growing in Thibet, about the 40th degree of latitude, in deserts, which have usually been looked upon as vast plateaux of sand, but which are really inaccessible citadels, formed of superposed stages of perpendicular rocks, the craggy buttresses of which have been but seldom, and then with difficulty, scaled by Europeans. It was thence that about the year 1868 M. Dabry procured some stalks of the true officinal rhubarb. How he procured these plants is not known, but probably they were carried off by a Chinese workman from land devoted to the lamaseries, from which the common people are scared by terrible imprecations.

Boerhaave and Pallas, like the explorers of the Meikong in our own time, appear not to have known the true rhubarb except from the accounts of the dealers who transported it from Thibet, either to Kiachta, the principal mart for it in Russia, or to China. Linnæus, however, was pretty near the mark when he wrote that the Asiatic rhubarb grew "*ad murum Chinœ,*" although the real locality is doubtless further east. But it has long been known that the plant is furnished with palminerved or digitinerved leaves, which are deeply incised on the margin. This has induced authors to think that the finest quality of the Asiatic drug is produced by a species in the same group as *Rheum hybridum*, probably by *R. palmatum*. Guibourt also arrived at this opinion after having cultivated and studied in Paris all the species of *Rheum* which he could obtain. But M. G. Planchon has shown that the roots of *R. palmatum*, as they are found in Guibourt's collection, do not present the histological characters of the Chinese or Russian rhubarbs of commerce.

Hitherto but little attention has been paid to what is said of the rhubarb plant by the authors of the Chinese "Pun-tsaou," namely, that the leaves are "green during the first month, and that when well developed they are as large as a fan, and resemble those of the *Ricinus communis;*" also, that the stem is very large, one to two feet

long, covered with a black bark, soft, humid, and containing a yellow sap-wood. These characters are very perceptible in a plant sent by M. Dabry to M. Soubeiran, in the putrified mass of which some shoots were found still intact by M. L. Neumann. These shoots carefully cultivated have produced some plants, one of which has flowered with M. Giraudeau, in the valley of Montmorency, and another is cultivated in the Garden of the Faculty of Medicine at Paris. It has there produced leaves of about a metre and a half in length, and of which the limb, a little broader than long, is orbicular, deeply five-lobed, and incised, cordate at the base, pale green, glabrous above, densely covered underneath by a fine white down, which does not alter the green tint. In the inflorescence, the bracts of about two metres in length, ramified, foliate, and bare at the summit, are surmounted by numerous cymes of whitish flowers, remarkable for the depth of their concave receptacles and the green color of their disks. The aerial portion of the axis of this plant, for which the name of *Rheum officinale* is proposed, is a thick, short, ramified stem, whilst the subterranean portions are cylindrical, of small size,—therefore of little practical use,—and easily destroyed, from which cause it is rarely, and in but small quantity, imported into Europe. This is the reverse of what is found in the European rhubarbs, of which the fuller developed root is the part usually employed, together with a small portion of the stem. But in the Thibet rhubarb the part principally employed is the aerial stem or branches. Hence the peculiar characters of this drug as it is generally met with in commerce. It is characterized by its color, smell and taste—found in the living plant from Thibet—and by the numerous starred spots which are observed in sections of certain portions. The pretended black bark which is removed in cleaning this rhubarb is nothing but a mass of leaf bases and of ochreas which cling to the surface of the stem. As the stems of *Rheum* which have been planted in France comport themselves as true sympods, on the surface of which there are not only leaves, but also axillary buds, it is not astonishing that these buds, separated from the mother-plant, readily develope adventitious roots, allowing of their easy reproduction. Thus the future is assured of a large number of stalks of this plant, handsome in an ornamental point of view, and susceptible of being successfully cultivated in France in the open air, where it has already supported a winter of 20°.

The radiated spots in rhubarb are really transverse sections, more or less oblique, of adventitious roots, which penetrate from the base of the root into the parenchymatous mass of the stem, where they appear as a pith of medullary rays, with triangular portions of parenchyma and wood interposed. This makes it practically possible always to distinguish the rhubarbs met with in commerce consisting of the cauline portions of the plant from those consisting of the root.—*Pharm. Journ. Lond., Oct.* 19, 1872.

REPORT ON CINCHONA BARK GROWN IN JAMAICA.

By the kindness of J. E. Howard, Esq., we are enabled to print a report made by him upon some samples of cinchona bark forwarded to him by Mr. Sargeaunt, the Crown Agent for the Colonies. The samples included five species grown in the Botanical Gardens, Jamaica, and one from a locality named Cold Spring. Those from the plantation had been planted out three and a half years, the specimens from Cold Spring was supposed to be about eight years old.

Report by J. E. Howard, Esq., F.L.S., etc., *to the Crown Agents for the Colonies on the above samples.*

Sir,—Referring to your letter of the 27th June,* I have to inform you that the samples of cinchona bark from Jamaica have been received and fully investigated, and I am glad to be able to report that the result is highly satisfactory as regards the prospects of cinchona cultivation in that island.

The total contents in alkaloid may be described as quite favorable for the time of growth, with specialities which seem to indicate that some species are more exactly suited than others. The *C. calisaya* is in this case decidedly the most promising, and it has already attained

* "The samples of cinchona bark have been forwarded, and I shall be glad to receive the report which Mr. J. E. Howard has kindly promised to give on their botanical qualities and commercial values. I enclose an extract from a letter from the Superintendent of the Botanical Gardens, Jamaica, which may be of assistance to Mr. Howard in his examination of these specimens.

"*Extract referred to under date, April* 22, 1872: 'I send herewith all the species (five) grown here, and also a specimen from Cold Spring. They are all labelled. Those from the plantation are now three years and a half old, that is, from the time they were planted out, when they were four to six inches high. The specimen from Cold Spring is, as nearly as I can make out, about eight years old.'"

a percentage of quinine which would fit it for the purposes of the manufacturer. This may be owing to a difference in the sort cultivated; if otherwise, it marks a more favorable climate for this species than the East Indies present.

The reverse may be remarked of the *C. officinalis*, which has probably not been planted at a sufficient altitude above the sea.

The *C. succirubra* resembles that grown in India, with the exception of the specimen from "Cold-spring." The latter is thin, and with the appearance of having grown slowly, but is of very good quality, containing quinine, cinchonine, and cinchonidine in almost equal proportions, together with great abundance of the peculiar cinchotannic acid. It would be exactly suited to pharmaceutical purposes.

The *C. micrantha* and the *C. pahudiana* are of equal value. The *C. micrantha* contains more quinine and less cinchonine than usual. The *C. pahudiana* contains about as much quinine, more cinchonidine and the same amount of cinchonine as the last.

They are both inferior to those previously named. The three best specimens might be worth from 1*s.* 6*d.* to 1*s.* 10*d.* per lb., for manufacturing purposes, or might command even a higher price for druggists' use. The others would also sell at prices higher or lower, according to the fancy of the purchasers.

I return samples for quantitative analysis, and remain yours, etc.,

[Signed] JOHN ELIOT HOWARD.

—*Pharm. Journ., Lond., Aug.* 3, 1872.

THE NEW TREATMENT OF ITCH.

The following translation from the German of Professor Rothmund, we quote from an English source:—

The remedies hitherto in use for the itch, such as Wilkinson's sulphur ointment, Hebra's tar soap, Vlemingx' solution, etc., are not to be compared for certainty, rapidity and pleasantness of cure with *styrax* and *Peruvian balsam*. *Styrax* was first recommended in itch in 1865, by Von Pastau, of Berlin. It has shown itself a most efficacious remedy, due to its containing cinnamein, cinnamonic acid and resin. It is used as a mixture:—Styrax, ℥ij, ol. olivar. ℥j, or thus, styrax, ℥ij, alcohol, ℥ss, ol. olivar., ʒij. Styrax is a good and cheap remedy, its only disadvantage being its very disagreeable smell. For children it is used in the form of soap. Balsam of Peru is even

better than styrax for the cure of itch. It was first employed in 1853, by Bosck, and was strongly recommended by Bärensprung in 1864, on the strength of an extensive trial of it in the Charité Hospital, of Berlin. Its component parts are cinnamein, cinnamonic acid and resin. Balsam of Peru is preferable to all the other vaunted remedies, because the acarus scabiei is most rapidly killed by it, because it acts with rapidity, with certainty, and agreeably; because it does no injury to the skin; because it easily penetrates the skin; because baths are not absolutely necessary with it, and because it kills all the acari and their eggs, for when well rubbed into the skin it comes in contact with the eggs. As a remedy for children it is superior to all others. The children are first placed in a warm bath, then well dried, and forty drops of the balsam rubbed well in. This is to be repeated four or five times the next twenty-four hours, and the cure is complete. It may be used in every form of iteh in children with advantage. It has, to be sure, no effect upon the eczema scabiei; for this, soap baths, starch powder, or glycerin inunctions are required. In adults the best plan is to rub in the balsam of Peru all over the naked body, slowly, carefully and gently, giving special attention to certain parts of the body, especially the fingers. Although in the treatment of itch the rubbing in cannot act mechanically, yet, whatever substance may be used, the mode of preparing the inunction is of great importance. As the balsam is readily distributed, nine grammes of it suffice for one operation. It is not at all necessary to begin the treatment with a bath; but if a bath is first given, the rubbing-in should not follow immediately, as the balsam is more rapidly absorbed by a dry skin. Hence, in persons who easily perspire, the skin should be well dried before the remedy is used. When the operation is carefully performed, relapses occur very rarely, and there is never any increase in the eczema that may be present. It is seldom that prurigo occurs after the itch. Should it occur, this disagreeable symptom is more readily removed by the internal use of carbolic acid than by warm baths and soft soap or glycerin. The only objection to Peru balsam is its expense. Carbolic acid, on account of its efficacy, its facile employment and its cheapness, deserves to be mentioned next to Peru balsam. It must be mixed with glycerin or oleum lini, to prevent its caustic action. One scruple of acid. carbol. is to be mixed with two ounces of either of the two other excipients. This remedy has this advantage, that by its action on the peripheric cuta-

neous nerves, it completely removes and prevents the morbid itching, prurigo and pruritus. In case of prurigo and pruritus, independent of itch, the internal use of carbolic acid in the form of pills is an excellent remedy. As the carbolic acid gets pretty quickly into the circulation, it is necessary to give it in very moderate doses, especially where there are parts destitute of epidermis. But as thereby its action is delayed, it is better to employ the carbolic acid in the form of a salt. According to Rothmund, natrum carbolicum supplies all the requirements of a good, rapid and certain itch remedy. The following is the best way of using it:—

℞.	Natr. carbol.,	- -	℥xv.	
	Aqua destil.,	- -	flozclxxx.	M.

With this the affected portions of the skin are to be rubbed three times a day, and even in the most inveterate cases the treatment never lasts more than two and a half days; relapses are not to be feared, and if the rubbing-in is carefully performed, no erythema to speak of occurs. During the treatment the patients are in no way hindered from following their usual occupations. One advantage of the Peru balsam and carbolic acid treatment of itch is that it is not necessary to disinfect the clothes or bed linen. In order to make sure, Rothmund recommends an additional rubbing-in to be made some eight or ten days after the cure of the itch, in order to kill any acari or their eggs that may have lurked among the clothes or bed linen.—*Canadian Pharm. Journal, Oct.*, 1872.

THE PRECIPITATION OF SILVER BY COPPER.*

By Alfred Tribe, F.C.S.

When a piece of copper foil is metallically connected into a piece of silver, and placed into an aqueous solution of cupric nitrate (dilute to about 6 per cent.) containing air, the oxygen of the latter slowly combines with the copper of the nitrate, forming cuprous oxide, which deposits on the silver in a fine crystalline condition, whilst the nitric element combines with metallic copper, reproducing the nitrate. If the copper have its surface covered with crystalline silver, the decomposition of cupric nitrate by free oxygen is accelerated, so much so that, when this couple is moistened with the salt and exposed to air

* Read before the British Association, Brighton Meeting, Section B.

or oxygen, the tips of the silver crystals become at once coated with cuprous oxide; and when a limited quantity of air is used, nitrogen only remains in the free condition (Gladstone and Tribe, *Proc. Roy. Soc.*, vol. xx, p. 290).

In carrying out the above and other experiments, it was frequently necessary to completely precipitate silver from the nitrate by copper, and it was observed that the metal so obtained, after being washed with water, invariably contained copper, sometimes in considerable quantity. Since the above-mentioned couple is formed the instant silver in solution is brought into contact with copper, the idea suggested itself that the copper found in silver precipitated by that metal might be due to dissolved oxygen in the silver solutions; or to the absorption of that gas, by the liquid, from the air during or subsequent to the precipitation of the metal. The experiments made with the view of ascertaining the correctness of this supposition are tabulated below.

There was employed in each experiment an excess of copper, and in experiments C to I about the same volume of liquid. In A and B, pieces of copper of the same dimensions were placed in open basins and covered to about a quarter of an inch with ordinary silver nitrate, *i. e.*, impregnated with air. In C, D and E, bottles were filled with ordinary silver solution and stoppered during the precipitation. In F and G, carbonic anhydride was bubbled through the solutions prior to the immersion of the copper plate, and the precipitation conducted as in C, D and E. In H and I ordinary solutions were employed.

Experiment.	Per cent of $AgNO_3$ in Solution.	Duration in Hours.	Copper in Precipitated Metal.	Copper per 100 parts of Precipitated Metal.
A	1·4	24	0·0185	7·45
B	1·4	48	0·0377	15·23
C	3·5	24	0·0103	0·32
D	1·4	24	0·0096	0·77
E	0·7	24	0·0099	1·61
F	3·5	24	0·0025	0·08
G	1·4	24	0·0029	0·23
H	3·5	$\frac{1}{8}$	merest trace	—
I	3·5	$\frac{1}{16}$	" "	—

It appears from experiments A, B and D, that the quantity of

copper is increased by exposing the couple covered with a solution of cupric nitrate to the air, and diminished by precipitating in closed vessels. The actual amounts of copper in C, D and E being nearly the same, indicate that its presence cannot be attributed to oxygen in the copper employed; and, moreover, is a result which would follow were it caused by dissolved oxygen in the silver solutions, since it is probable they each contained about the same quantity of the gas. Experiments F and G show that the effect of saturating the solutions with carbonic anhydride prior to precipitation is to diminish the amount of copper three to four times, which doubtless is due to the partial displacement of oxygen by the more soluble gas. In experiments C to G, there existed a trace of silver in solution after the twenty-four hours. H and I, being of short duration, an excess remained; and it is noticeable that, in every case where the silver was nearly exhausted, copper was found, whereas, where there was an excess in solution, the merest trace only of copper existed in the precipitated metal.

It appears from the foregoing experiments that free oxygen is intimately connected with the presence of copper in silver precipitated by that metal; but, whether copper exists therein as cuprous oxide or as basic nitrate, would depend upon at what stage of the operation the oxygen plays its part. If the two actions, *i. e.*, decomposition of silver nitrate by copper, and cupric nitrate by oxygen, be simultaneous, basic nitrate should be found. If, however, the decomposition of cupric nitrate be not effected until the silver nitrate is so exhausted as to be incapable of action on the produced cuprous oxide, that substance should be found. One experiment made on this point with a weak solution of silver nitrate, seemed to show that basic nitrate of copper did not exist.—*London Chem. News, Sept.* 20, 1872.

ON A NEW PROCESS FOR THE ESTIMATION OF IODINE IN KELP LIQUORS, MINERAL WATERS, &c.

By E. Sonstadt.

The addition of an alkaline permanganate to a liquid containing an iodide in solution, converts the iodide into an iodate, provided sufficient free alkali, or alkaline carbonate is present to prevent liberation of iodine. This fact (which I discovered early in the present year, in the course of investigations having for their object

the effecting of improvements in the manufacture of iodate of potassium direct from the mother-liquors of kelp, instead of from iodine, as hitherto practiced), I have found very serviceable for the estimation of iodine.

Alkaline solutions of chlorides and bromides are not in the least acted upon by permanganate solution. But neither chlorides, bromides, nor any other salts that ordinarily occur with iodides, interfere with the transformation of iodide into iodate by permanganate. Even organic matter does not interfere, provided the permanganate is added in sufficient excess. The process I adopt consists simply in adding excess of permanganate of potassium to the solution of salts containing iodide until a slight permanent tint of permanganate coloration remains. The solution is first rendered alkaline, best by addition of caustic soda, to an extent adjusted to the proportion of iodide present; but always so far as to preclude any possibility of the liberation of iodine. The liquid is then filtered, and if it does not already contain a sulphate, a small proportion of a sulphate is added to it. Solution of chloride of barium in excess—but not in much excess—is then added, and the precipitate, after separation from the liquid by filtration and washing, is heated with solution of sulphate of potassium in excess. The filtered solution contains the whole of the iodine originally present in the portion taken for analysis, as iodate of potassium. The quantity of iodic acid may be estimated volumetrically by any of the usual processes; or the mixture of iodate and sulphate may be ignited at a low red heat, and the iodide of potassium remaining be estimated either volumetrically or gravimetrically.

In this process, the transformation of iodide into iodate by permanganate in alkaline solution is *complete*. The precipitation of the iodic acid by a barium salt in presence of a sulphate is *complete*. The decomposition of iodate of barium by heating with solution of sulphate of potassium in excess, is *complete*. By the word "complete," I mean within appreciable limits. That is to say, I have, in the course of many experiments specially devoted to that end, been unable with certainty to detect even a trace of iodine either in a liquid in which an iodide had been transformed into iodate as described, and precipitated, in presence of a sulphate, by chloride of barium; or in the barium precipitate, after heating with sulphate of potassium in excess, filtering, and duly washing.

The severest test that can be applied to a process of this kind, is not to use it upon weighed quantities of an iodide, but to try it upon liquids containing, for the quantity taken, imponderable quantities of an iodide or of an iodate. The experiments that have already been described on sea-water, in my paper "On the Presence of Iodate of Calcium in Sea-water," afford a good illustration. In these experiments, one part of iodate of calcium in a quarter million parts of liquid, sufficed, in such a quantity of the liquid as did not contain a ponderable quantity of iodine, to give measurable iodine reactions in the precipitate thrown down by chloride of barium. And yet, if we suppose the whole of the iodine in sea-water to exist as iodate of barium, after addition of a barium salt, the sea-water would contain only about 1 per cent. of a saturated solution of that salt. I at first supposed this very complete precipitation of iodic acid by barium salt in sea-water to be owing to some element contained in my chloride of barium, that formed an iodate much less soluble than any that had been described. I therefore took a considerable quantity of the same chloride of barium that had been used in these experiments, and precipitated it fractionally by solution of pure iodate of potassium at three times. All the precipitates had sensibly the same degree of solubility in water. Iodate of barium is remarkable, however, in this; that it dissolves with such extreme slowness in even boiling water, that it is the work of days with the aid of heat, to get a really saturated solution. The water used in these experiments had been carefully distilled off permanganate of potassium, since water not perfectly free from organic matter cannot be trusted for solubility determinations of the iodates. The results I obtained agreed nearly enough with the published determinations of the solubility of iodate of barium to convince me that the complete precipitation of iodic acid in presence of sulphuric acid by a barium salt, is due to surface attraction, between sulphate of barium formed in the liquid, and nascent iodate of barium. If we consider how many square metres of surface a single gramme of so finely divided a precipitate as sulphate of barium usually is must present, the property that this salt is supposed to enjoy above all others, of carrying down with it more soluble salts, ceases to appear inexplicable. Yet this power certainly is not exercised solely in obedience to the degree of solubility of the salt so pulled, by mechanical attraction, as it were, out of solution. A *colloid* salt and a *crystalloid* salt seem to have no pulling power upon

one another; and crystalline salts apparently are subject to such influence under some law connected with the complexity of their crystalline form. Again, two colloid salts, as the hydrates of alumina and of ferric oxide, scarcely admit of complete separation.—*London Chem. News, Oct.* 11, 1872.

NEW PROCESS FOR THE MANUFACTURE OF IODIDE OF POTASSIUM FROM THE MOTHER-LIQUORS OF KELP.*

By E. Sonstadt.

This process consists in converting the alkaline iodides, contained in the mother-liquors from kelp, into iodates; precipitating the iodic acid by a soluble barium salt; heating the precipitate with solution of sulphate of potassium, which gives iodate of potassium in solution; drying up and melting the iodate of potassium solution, and crystallizing the solution of the melted iodide of potassium thus obtained.

The conversion of iodides into iodates in the mother-liquors is effected by one of the following processes. But it is advisable, first, to partially or completely precipitate the sulphuric acid from the mother-liquor by solution of chloride of barium or other suitable barium salt, as thus silicic acid, if present, and other impurities are separated, and the precipitate afterwards obtained of iodate of barium is more manageable. The mother-liquor is then, after separation of the precipitate, melted, to destroy organic matter. The melted mass is dissolved in water, and the solution, after separation from the residue, is, if intended for treatment by any of the processes except the last undermentioned, rendered alkaline by addition of a caustic or carbonated alkali, to such extent that the liquid may contain, for each atom of an iodide in it, five atoms of a caustic alkali, or ten atoms of a carbonated alkali. The liquid thus prepared may then be treated by any of the following processes for conversion of the iodide in it into iodate.

(1). Chlorine is passed through the liquid until the whole of the iodide is transformed into iodate, but no longer.

(2). Solution of a permanganate is added until a slight permanent coloration of permanganate remains. The liquid is then separated from the manganese precipitate, which latter may be furnaced with soda, or with soda and nitre, to reform permanganate for another operation.

* Patent No. 1054, April 10, 1872.

(3). By passing an electric current through the dilute solution in the way usual in electrolysis. This process would be convenient and economical where the electricity can be obtained from electro-magnetic machines worked by water-power.

(4). In this process the purified mother-liquor is dried up with addition of an atom of an alkaline chlorate for each atom of an iodate present. The mixture is then cautiously heated below redness until the iodide is converted into iodate.

After the iodic acid is separated from the mother-liquors, the bromide remaining in solution may be converted into bromate by either the processes (1) or (4), and bromide of potassium, obtained by the same methods as used for obtaining iodide of potassium. Processes (2) and (3) are not applicable to the formation of bromate.—*Chemical News, Oct.* 18, 1872.

QUINOA.

(*Chenopodium Quinoa.*)

By M. C. Cooke, M. A.

It is not long since that the seeds of this plant were procured from Peru, and sent to India in order to secure its introduction as a food plant into the Himalayan region. It is in Peru and Chili that the plant is chiefly cultivated, although Humboldt remarks that in Mexico it ranks in utility with the potato, maize and wheat. Meyen says that for those countries in which it is grown, it is, next to the potato, the best gift which nature has bestowed on man. Over all the plateau of Southern Peru, above the height at which rye and barley still ripen, the quinoa is the principal object of agriculture, and on the plateau of Chuguito are vast fields quite covered with this plant, which, however, do not give the landscape the charm of our own beautiful corn-fields. On good soil this plant attains the height of three or four feet, and bears an immense quantity of seeds, which, unfortunately, for a long time feed an innumerable flock of birds, like sparrows, for this plant has the disadvantage that all its seeds do not ripen at the same time. The quinoa is still cultivated in Southern Chili, but before the introduction of cereals it was doubtless a more general food. The variety which, according to Molina, is called Daline by the Indians of Chili, and which has ash-grey leaves

and white seeds, is the one commonly cultivated around the lake of Titicaca.

In 1834 it was first known in England, and in 1838 was figured and described in Curtis's "Botanical Magazine."

The *Chenopodium Quinoa*, Willd., is a herbaceous annual, with a stout erect angular stem of from three to four, or even five feet in height in a good soil; it branches considerably, with short erect branches. The lower leaves are as large as the human hand, and of somewhat triangular shape on long footstalks, and of a pale rather glaucous hue. Small green inconspicuous flowers, and afterwards the fruit, are produced on numerous panicles, both axillary and terminal. The whole habit of the plant closely resembles the goosefoot and spinach. The peculiar hue is caused by the myriads of glandular hairs, with subglobose iridescent heads, with which the plant is studded, and which are exceedingly beautiful under the microscope.

It is said that any light argillaceous soil is suitable for its cultivation. The ground appropriated to it is ploughed or well broken up, and the seeds sown in furrows a yard apart. Or the seeds may be sown in beds and afterwards transplanted. The seed time is in the spring, and the harvest about seven months after.

When quite ripe, the seeds, which are about the size of white mustard seed, but flatter, are easily reduced to a whitish meal. It is not tenacious when mixed with water, as is the case with wheaten flour, but more resembles oatmeal, and is therefore scarcely fit for making bread.

The starch granules are exceedingly minute, and constitute nearly 40 per cent. of the grain in its natural state. According to analysis, it contains upwards of five per cent. of sugar, seven and a half per cent. of casein, and upwards of eleven per cent. of albumen, and other protein compounds. This large amount of protein is unusual in farinaceous seeds, and indicates considerable nutritive value.

The varieties cultivated in Arequipa are called "Colorada," "Amarilla," "Blanca," "Real," "Ccosccossa," "Uchacachi," "Ccancolla," "Ccoyto," and the bitter seeded variety "Amarga."

In Lima two methods are employed in the preparation of quinoa. In one case it is boiled in water like oatmeal, and a kind of gruel is the result, in which the seeds float, or at least the remains of them; this is seasoned with pimento. The other method is a favorite with

the ladies of Lima. The grains are slightly toasted like coffee, and boiled in water, yielding a brown-colored soup, which is seasoned with spices, and is of a taste so peculiar that few strangers like it.

The real quinoa "amarga" is chiefly cultivated in small quantities in gardens. The seeds bruised and boiled in water are said to form a bitter decoction, which, mixed with sugar, is employed as a vulnerary for sores and bruises. Cataplasms are also made of it. The bitter quality is said to be removed by soaking in water. From other sources we learn that this variety is employed internally as an emetic, and also as a substitute for quinine in cases of ague, and externally as a poultice for cancer, gangrene, contusions, etc.

The leaves of the quinoa are commonly eaten as a vegetable, and much resemble those of other species of *Chenopodium*, as, for instance, the *Chenopodium bonus-Henricus*, and its ally the spinach.

It still seems to be uncertain what is the medicinal value of the red quinoa, and to what its bitterness is to be attributed. Whatever it may be, the bitterness seems to be confined to the husk or testa of the seed, and may be removed by digesting the seed in a dilute solution of carbonate of soda, and afterwards washing. It was this seed which was analyzed by Dr. Voelcker, with the following results:

	Natural state.	Calculated dry.
Water	16·01	
Starch	38·72	46·10
Sugar and Extractive	5·12	6·10
Gum	3·94	4·60
Oil	4·81	5·74
Casein and a little soluble albumen	7·47	8·91
Insoluble albumen and other protein compounds	11·71	13·96
Vegetable fibre	7·99	9·53
Inorganic matters	4·23	5·06
	100·00	100·00

A somewhat similar plant, or perhaps two or three species, has long been cultivated in India for its farinaceous seeds, which are very much smaller than those of the Quinoa. Under the names of *Amarantus gangeticus*, *Amarantus frumentaceus* and *Amarantus anardana*, plants are referred to by different authorities as yielding seeds resembling small millet, which are employed in a similar manner and for a like purpose.—*Pharm. Journ., Lond., Oct.* 12, 1872.

THE PRESENCE OF AN ORGANIC ALKALI IN BOLDO.

By E. Bourgoin and C. Verne.

The boldo is a tree indigenous to Chili, which sometimes attains the height of from five to six metres, and belongs to the order *Monimiaceæ*. It was first attributed to a laurel, the *Laurus dioica* of Dombey. It is the *Boldoa fragrans* of Jussieu, the *Ruizia fragrans* of Ruiz and Pavon, and the *Peumus fragrans* of Persoz. Baillon has recently described it under the name of *Peumus boldus*. The leaves have a strong piquant camphorate savor. They contain an essential oil and an organic alkali, to which the authors propose to give the name of boldina. The following method was adopted by them in their researches.

The powdered leaves were exhausted with washed ether in a displacement apparatus, by which method a well-saturated aromatic tincture was obtained. When this was submitted to distillation, the thermometer, after the ether had passed over, remained stationary at 185°, and a certain quantity of an essential oil, recalling the odor of the plant, was collected. The thermometer then rose gradually to about 230°, when it again remained stationary for some time, and afterwards mounted to about 300°. These facts showed that the ether had taken up some complex volatile products; in other words, that the essential oil of boldo is a mixture of several bodies, agreeing with what has been observed in regard to most aromatic plants.

When the powder would yield nothing more to ether, it was exhausted with 90° alcohol, containing tartaric acid in solution. Upon evaporation, a syrupy acid residue was obtained, which was agitated with washed ether, in order to remove a brown odorous matter, soluble in ether, alcohol and acids. After saturation with bicarbonate of potash it was agitated afresh with ether, which then took up a matter presenting all the characteristic reactions of an alkaloid; this was impure boldina.

In order to purify this product, it was dissolved in water slightly acidulated with acetic acid, and then precipitated by ammonia added in slight excess. This alkaloid existed in small quantity in the leaves operated upon—about one part in one thousand,—and moreover it was difficult to obtain it pure, since the aromatic matter previously mentioned, which was soluble in acids, clung to it with great persistence.

The above process being one rather of research than of extraction, af-

ter various experiments the following was adopted:—The leaves, coarsely powdered, were exhausted by infusion in water acidulated by 30 grs. of acetic acid per kilogram of product. The liquor was filtered and evaporated in a water-bath to the consistence of thick honey. It was then acid, and contained, beside the alkaloid, a little aromatic matter and a large quantity of acetate of lime. When the acetic acid was replaced by citric acid, alcohol caused a voluminous precipitate of citrate of lime; with sulphuric acid it formed an abundant deposit of sulphate of lime. These facts indicate the presence in the leaves in large proportion of a lime salt. The operation was terminated by washing with ether, saturating with the alkaline bicarbonate, and taking up the alkaloid with ether. Upon evaporation a residue was left which was dissolved in diluted acetic acid and then precipitated by ammonia. It was usually necessary to repeat this process to rid the alkaloid of a small quantity of yellow matter.

Boldina is very slightly soluble in water, to which, however, it communicates an alkaline reaction and a perceptibly bitter taste. It is lizable benzin. From solution in acids it is precipitated by ammonia soluble in alcohol, ether, chloroform, caustic alkalies, and in crystal- and the double iodide of mercury and potassium, and gives with solution of iodine a chestnut-brown precipitate. Concentrated nitric acid immediately colors it red and it assumes the same coloration in the cold with sulphuric acid.—*Pharm. Journ.* (*London*), *Oct.* 26, 1872, *from Journal de Pharmacie et de Chimie*, [4] xvi, 191.

Varieties.

To Cut and Bore India-Rubber Corks.—W. F. Donkin.—Dip the knife or cork-borer in solution of caustic potash or soda. The strength is of very little consequence, but it should not be weaker than the ordinary reagent solution. Alcohol is generally recommended, and it works well until it evaporates, which is generally long before the cork is cut or bored through, and more has to be applied; water acts just as well as alcohol, and lasts longer. When, however, a tolerably sharp knife is moistened with soda-lye, it goes through India-rubber quite as easily as through common cork; and the same may be said of a cork-borer, of whatever size. I have frequently bored inch holes in large caoutchouc stoppers, perfectly smooth and cylindrical, by this method. In order to finish the hole without the usual contraction of its diameter, the stopper should be held firmly against a flat surface of common cork till the borer passes into the latter.—*Chem. News, Lond., Aug.* 30, 1872.

Liquid Glue Prepared from Saccharate of Lime.—A solution of one part of loaf sugar in three parts of water, when spread on paper, imparts to it neither gloss nor strength, for the size does not adhere to the fingers when moistened. If, however, we add to the sugar the fourth part of its weight of slaked lime and warm it to 145° to 165° F., then let it macerate some days, shaking it frequently, we shall find the greater part of the lime dissolved. The solution decanted from the lime sediment is then found to have the properties of mucilage, and a coat of it possesses gloss and firmness.

If we soak three parts of glue broken in small pieces in 12 to 15 parts of this saccharate of lime, then on warming it the glue dissolves rapidly, and remains liquid when cold without losing its strength, as glue does when treated with acid. Glue of any desirable consistency may be prepared by varying the amount of saccharite of lime added. The thicker glue keeps its muddy color, the thin becomes clear on standing.

Gelatin dissolves in this solution of lime and sugar without previous soaking; even old gelatin which has become insoluble in hot water is soluble in this compound. This glue has great adhesiveness, and admits of very many uses. It cannot, of course, be used on colors that are injured by the lime, as. for example, chrome yellow, Paris blue, zinc green, Behringer's green and carmine. Ponceau made from carbolic acid is changed into a beautiful carmine color. When warming the glue to dissolve it, a strong smell of glue is given off, but this is destroyed by a few drops of oil of lavender. A small admixture of 2 to 3 per cent. of glycerin is also an advantage. Carbolic acid acts upon the lime when the glue is exposed a long time to the air, producing little white specks, without, however, affecting its adhesive and preservative power.—*Journ. Appl. Chem., Nov.*, 1872.

A Cement to stop cracks in glass vessels to resist moisture and heat. Dissolve caseine in cold saturated solution of borax, and with this solution paste strips of hog's or bullock's bladder (softened in water) on the cracks of glass, and dry at a gentle heat; if the vessel is to be heated. coat the bladder on the outside, before it has become quite dry, with a paste of a rather concentrated solution of silicate of soda and quick-lime or plaster-of-Paris.—*Sci. Amer.*, *Oct.* 19, 1872.

On Beavers and Beaver Dams in Mississippi—By Mr. John Shelton.—From a letter to one of the editors, dated Raymond, Hinds Co., Mississippi, Sept. 12.—I have resided in this county since 1837, now for nearly thirty-five years. When I came here I was young and somewhat given to hunting. At the outset, to my inquiries of other hunters, whether there were beavers here, it was replied, that there were a few, but no one could then tell me where there was one of their dams in this neighborhood.

And yet by the year 1850, their dams were to be found in nearly all the streams in the county that were not so small as to become dry during our long summers, or too large for the operations of the beaver. They continued to increase, greatly to the injury of most of our low land, and to the annoyance

of its cultivators. In 1858 or 1859, a professional trapper from Wisconsin, if I am not mistaken, caught seventy-five or eighty beavers in this county in less than a month's time.

They are yet increasing in this county, as I have no doubt they are in all the counties of central Mississippi and Alabama, and perhaps entirely throughout both States. I have no doubt that in Hinds county they are more than half as numerous as the population. I now write in the Court House of the county, and they can be found in sight of it, and at a less distance than one mile.—*Am. Jour. Sci. and Arts, Nov.*, 1872.

Opium Smoking.—As a large portion of Middle China is devoted to the cultivation of the poppy, and already merchants are complaining that their profits are diminished by the rapidly increasing product of the Chinese drug, the following gleanings from a correspondent of an exchange journal at Foochow may interest some of our readers:

"Intelligent Chinese inform me that the number addicted to opium-smoking is rapidly increasing. All classes are alike guilty of the vice, and in some cases entire families are ruined, both physically and financially, by the use of the drug.

"This is an aqueous extract made by first dissolving the crude opium in water and steaming, then carefully boiling. The impurities, such as fragments of leaves, sticks, &c., are skimmed off, and this is continued until it has a consistency and appearance resembling tar. The prepared opium represents about twice its own weight of crude opium drug. It is retailed to the smokers, who carry it in small boxes made of buffalo's horns.

"The implements used in smoking are the pipe, a small lamp and a flattened wire. The pipe is made of some heavy wood, frequently of ebony, mounted with silver trimmings. They are from one to one and a half feet in length, and from one to one and a half inches in diameter. The bowl of the pipe is made of earthenware, and has only a small aperture to receive the opium.

"The smoker reclines on his side, and, if wealthy, he has a servant to hold his pipe, hand him his opium, and fan him. A quantity of opium about the size of a pea is collected on the end of a wire, placed in the bowl of the pipe, and ignited by being brought into contact with the flame of the lamp. The smoker inhales it in two or three whiffs, and it is retained in the lungs as long as possible.

"The amount consumed by the habitual smoker is quite surprising. A quarter ounce is daily used by hundreds, and in some cases it is believed to reach an ounce."—*Med. Press, Lond., Oct.* 2, 1872.

Boldo.—This is the name of a new remedy which has been recently introduced into Europe. It is imported from Chili, where it is distilled from the leaves of a tree of the genus *Monimiaceæ*. Its reputation appears to rest upon a pretty slender basis, and not upon the results of any trustworthy experiments. Thus far it has been administered empirically for the more frequent affections of the liver. As in the case of *cundurango*, its use is most strongly recommended by charlatans, pecuniarily interested in its success, and, like that drug, its popularity will probably be of very short duration.—*Boston Med. and Surg. Journ., Oct.* 3, 1872.

The Fever Tree.—Dr. Pedro L. N. Chernovis, of Bahia, in a late number of the "Gazeta Medica da Bahia," gives a very interesting account of the history, uses, propagation, medical and miscellaneous properties of the *Eucalyptus globulus*, an immense tree introduced into various provinces of Brazil from Australia, and called, as in Spain, *arvore da febre*, from its "marvellous results in the treatment of intermittent fevers." The tree is colossal, sometimes attaining a height of 300 feet and a diameter of 30 feet. All parts are aromatic, less so in the trunk and bark, more so in the small roots, flowers and leaves. It is a comparatively new medicine of much promise, and is given internally for intermittent fever, in doses of from one to four drachms of the powdered leaves—twice during the intermissions—or in infusion (two drachms in four ounces of boiling water), morning and evening. Aqueous and alcoholic extracts, in doses of from two to eight grains, are also used for the same disease. One or two drops of its essential oil, on sugar, in pill or capsule, are advised in bronchial and pulmonary affections, laryngitis and catarrhal aphonia.—*Boston Med. and Surg. Journ., Oct.* 24, 1872.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held Tuesday afternoon, Nov. 19th, 1872, William B. Webb in the chair.

Minutes of last meeting were read and approved.

Mr. Remington made some remarks on ceresin, a new substitute for white wax. It is obtained from ozokerite, or fossil wax, found in Gallicia, Ozokerite is distilled between 250° and 300° centigrade, to separate liquid oils; the residue is treated with Nordhausen sulphuric acid to separate impurities. It is then refined by a simple process, and sent into commerce. The commercial article is used principally in the manufacture of candles, as a substitute for wax or paraffin, differing from paraffin by its greater opacity, and not being unctuous to the touch, and its behavior when treated with various solvents, —ether, boiling alcohol, turpentine, benzin. Chloroform dissolves both paraffin and ceresin to greater or less extent, and each is deposited from warm solution in a different manner, paraffin being unchanged on cooling on the sides of the vessel, whilst ceresin is a heavy flocculent precipitate. Ceresin costs 90 florins per 50 kilos in Bremen, equal to about $46 gold laid down here. It may be used to adulterate wax, or as a substitute, resembling it quite closely in fracture, but being a little white in color.

Prof. Maisch presented to the College several pamphlets on pharmaceutical subjects, donated by Dr. Theod. Peckolt, and styled Analyses de Materia Medica Brasileira dos productos que Ferao premiados nus Exposiçoes nacionals e na exposao universal de Paris em 1867. Explicaçôes sobre a Collecçâo de Pharmacognosia e Chimica Organica, etc. Enviada â Exposiçâo Nacional. Historia das Plantas Alimentaras e de gozo Do Brasil contendo generalidades sobrea agricultura Brasileira, a cultura, uso e composiçâo chimica de cada uma dellas. Also, a treatise on "Guaranâ oder Uranâ." Also, on "Lophophytum

mirabile Schott. et Endl. Also, Carpotroche Brasiliensis Endl. The meeting desired the expression of thanks for these additions to the library of the College.

Prof. Maisch also presented, from Mr. P. W. Bedford, a map locating the various articles of "Materia Medica." The map, though generally correct, has in several instances mistaken the locality of some of our American plants. The work is a very valuable one to the student of materia medica and pharmacy, and supplies a want long felt.

Mr. Remington presented a modified form of crystallized permanganate of potassa, in which the ordinary needle-like character was entirely wanting, the crystals merely showing the pyramidal summit common to the usual salt. This effect was doubtless due to interference from other salts of greater solubility present in the solution from which the permanganate was crystallized. The appearance of the modified form of crystals was such as to lead to the supposition that an adulteration was attempted. The article was imported from Germany and offered for sale in this market.

Prof. Maisch introduced the subject of musk, and exhibited several very interesting samples of the pod, obtained from Mr. Cramer, who imported the pods. Among the collection were some curiously shaped pods, which had been pressed in a conical shape in drying or during transportation, also some with exceedingly thick skins.

From the records kept by Messrs. Cramer and Small, the following has been furnished to show the yield of musk:

Number of Bags.	Weight of Bags.			Weight of Musk.		
2	1 troyoz.	3 dr.	— gr.	– troyoz.	5 dr.	— gr.
3	2	3	15	1	2	—
6	4	3	10	2	2	10
4	4	1	—	1	1	30
12	10	–	—	3	2	40
1	—	5	40	–	3	—
1	—	6	23	–	3	23
29	23	6	28	9	3	43
Average for 1 bag,	394 grains			$156\frac{2}{3}$ grains.		

Prof. Maisch also exhibited a mass of cubical crystals, which were found on the coast of Patagonia, embedded in guano. Analyzed at the College laboratory, by Mr. N. J. Bayard, they were found to be chloride of ammonium.

Prof. Maisch exhibited the leaves of *Eucalyptus globulus*, recently highly recommended in Europe in fevers; also, a specimen of the volatile oil. The tree is indigenous to Australia, and is of rapid growth, attaining the height of 300 feet. In Europe this tree is used as an ornamental tree for shade, and was supposed to have a good effect on the salubrity of the climate.

Prof. Maisch, on behalf of E. H. Heinitsh, of South Carolina, exhibited a sample of South Carolina opium. It is considered by those engaged in producing opium in this State that the plants can be grown with considerable profit. The sample sent has not yet been analyzed; it was gathered when the plant was green and in its luxuriance of growth.

Some discussion was entered into upon the subject of domestic opium, and the different makes were freely discussed, with the resulting opinion that our warmer climates might produce opium, if grown properly, equal in quality to the article from the usual source.

After the usual friendly greetings, the meeting adjourned.

CLEMMONS PARRISH, *Registrar*.

Pharmaceutical Colleges and Associations.

CINCINNATI COLLEGE OF PHARMACY.—We are pleased to learn that this College has entered upon its second course of instruction with a class of about fifty students.

The members of the College met October 27th to greet Professor Wayne, who had returned home from a tour to Europe, and gave an account of the state of pharmacy in London, Paris, Geneva and Berlin. The company afterwards sat down to a sumptuous supper, and with many a brilliant sally and quick repartee, and toast and song, the evening sped swiftly away.

At the monthly meeting of the College fifty elegant specimens of materia medica were presented on behalf of Messrs. Cheney, Myrick, Hobbs & Co., of Boston; also specimens of American antimony, Kieserite, curare, amygdaloid benzoin, button lac, ambergris, a Chinese opium pipe, a fine photograph of the statue of Esculapius, and other rare articles by Professor Wayne.

Professor Judge also presented to the College a number of valuable books to form a nucleus for a College Library, and at his motion a Committee of three was appointed on Library, consisting of Messrs. Judge, Fratz and Ayers.

The Secretary of the College, Mr. J. M. Ayers, in a letter to the Editor, writes:

"If any of our friends have books they may feel disposed to donate to our Library, they may send them per express, at our expense, addressed to 'Library Committee Cincinnati College of Pharmacy, care of F. E. Suire & Co., Cincinnati, O.'

"Our College is already counting on the pleasures of the excursion to Richmond next September, and I assure you we will be represented by a full delegation at the meeting of the American Pharmaceutical Association at that time."

CHICAGO COLLEGE OF PHARMACY.—The course of instruction commenced on the second of October, the introductory address being delivered by Professor Bartlett.

The apparatus, specimens and books collected for this College in England and France have arrived, and form very valuable collections.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the Pharmaceutical meeting held November 6th, Mr. A. F. Haselden occupied the Chair. Some valuable donations to the library were received.

Mr. Hanbury exhibited some leaves of *Rheum officinale*, Baillon, recently described as the source of true Chinese rhubarb.*

* See page 546 of this Journal.

Messrs. Hopkin & Williams exhibited fine specimens of monobromo-camphor, made by the process suggested by Professor Maisch, and of carbazotate of ammonia, which is intensely bitter, and was lately recommended as a substitute for quinia. Mr. Williams, from the results made many years back upon a corresponding salt, the carbazotate (picrate) of potassa, thought it somewhat doubtful if it would be found to be of great value; he also pointed out that care should be taken in manipulating it, as, under certain circumstances, it was violently explosive.

Mr. Bland called attention to a specimen of adulterated cochineal, loaded with about 20 per cent. of sulphate of barium, an adulteration which was common enough years ago.

Mr. Hustwick, of Liverpool, presented asthma pastilles made from the following formula:

Asthma Pastilles.

Pasteboard, broken down with hot water, ...	4 oz.
Nitrate of potassa, ...	2 oz.
Belladonna, stramonium, digitalis, lobelia, powdered, each, .	20 grains.
Myrrh and olibanum, of each, ...	2½ drachms.

Incorporate all these with the paste, and divide the mass into pastilles; burn them in a saucer in a well shut room.

A paper, by Mr. Haselden, on tincture of orange peel, gave rise to some discussion, in which it was generally admitted that it should be prepared from the fresh or recently dried peel, carefully removing the white portion, but that, on dilution with water, it would become more milky than when prepared from the dried peel.

Professor Redwood read a paper on the proposed universal pharmacopœia, and Dr. Thudichum, after giving a history of the various attempts at a universal pharmacopœia since 1697, explained that the proposal of publishing a *European pharmacopœia* originated with Professor Phœbus, of Giessen, in 1867–69. It appears that Messrs. Cantini, of Naples, Flückiger, of Berne, Planchon, of Paris, Schneider, of Vienna, Thudichum, of London, Trapp, of St. Petersburg, and several others, who have constituted themselves into a "Pharmaconomic Society," are actively engaged on this work. The value of the remedies will be indicated by the use of different types; the important medicines by large type, those of subordinate value, but still useful, by smaller, and those which may be considered as mere trash, by still smaller type.

The Pharmaceutical Society of Antwerp is now engaged in the preliminary revision of the Belgian pharmacopœia, and meets for this purpose every two weeks.

The same Society has prepared a memorial "On the necessity of reorganizing the pharmaceutical corps of the army upon an equitable base," and has transmitted the same to the Secretary of War and to Mr. Decaisne, Inspector General of the sanitary service of the army.

The Austrian Apothecaries' Society met at Innspruck, September 9th and 10th. The transactions were mainly of local interest. The next meeting will be held the coming year in Vienna.

Editorial Department.

Pharmaceutical Utility of Botanical Gardens.—Under this caption we find in a recent number of the *Pharmaceutical Journal and Transactions* an interesting extract from a lecture delivered by Dr. von Mueller, at Melbourne, Australia, and we regret that our space does not admit to extract more copiously from the address which, we observe, is published in full in the *Journal of Applied Science,* August and September, under the title of "The Objects of a Botanic Garden in Relation to Industries."

There are but few botanical gardens in this country, while not a single city, boasting of a "park," ought to be without one. In Philadelphia and Baltimore, and probably also in some other cities, the subject was brought to the notice of the proper authorities, but we believe without any other result, thus far, except promises for the future, which, however, we hope will become realities before long. We copy as follows:

"Botanic gardens and their uses is a subject that has been taken up and treated of very fully in a lecture by Dr. Von Mueller, of Melbourne The great utility of a well managed botanic garden in its various phases is pointed out, and he advocates that, in a pharmaceutical point of view, a botanic garden is not only an indispensable element in the education of the student, but is a constant and ready help through life. Dr. Mueller says:—'For toxicological experiments in a botanic garden the various poison plants become of importance, irrespective of the guardianship, which the display of these plants in a living state so instructively exercises. Investigations of this kind require lengthened attention, the separation, analyses, and identification of organic poisons being surrounded with far more difficulty than the examination of metallic or other inorganic substances. Besides, the development or intensity of the deleterious principle depends often on local causes, which are not always within ready range of observation, or perhaps even involved in mystery, such as physiology and chemistry have hitherto striven in vain to clear away. The so-called Cape weed (*Cryptostemma calendulacea*), for the presence of which I am not responsible, as it had already irrepressibly invaded some parts of Australia as early as 1833, was recently subjected in my laboratory to examination, with a view of ascertaining whether any chemically separable active principle might produce the violent purging, terminating in acute, and often fatal dysentery, to which flocks occasionally become subject; but the investigation gave negative results. The deleterious effect arises, therefore, either merely from a mechanical irritation and distension when sheep have gorged themselves with this weed, or it may be traceable to a locally developed poison, which in ordinary circumstances does not exist. The latter was ascertained to be the case by my own experiments as far as *Swainsona Greyana*, *S. lessertiæfolia*, *Lotus australis*, *Gastrolobium bilobum*, and, perhaps, *Stypandra glauca*, are concerned. The two former cause in some localities cerebral affections in horses and other pastural animals, terminating in death; but the cultivated plants were found harmless. *Gastrolobium*, with some species of *Oxylobium* and *Isotropis*, the bane of the heath pastures of West Australia, has hitherto baffled all efforts to detect an antidote, but one of the most dreaded species, *Gastrolobium bilobum*, proved here in cultivation inert. Desert specimens of *Lotus australis* produced in my local trials deadly effects on sheep, while our garden plant, or the fresh herb from the sand shores of Port Phillip, showed themselves innocuous. *Stypandra glauca* is reported to produce complete blindness of sheep in some districts of West Australia, the eyes, it is said, assuming a blue

tinge throughout. Unless this grass lily has been confused with an alien and externally similar weed—namely, *Agrostocrinum stypandroides*—we have again a plant which, with capriciousness, has hitherto baffled our toxicologic experiments *Anguillaria* and *Burchardia*, which early in the spring sprinkle their pretty blossoms so universally over the pastures of the whole of extra tropic Australia, produce, so I have ascertained, innocuous bulbs, although belonging to a tribe of plants which includes the dreadfully deleterious veratrums and sabadilla.' "

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Ueber Molekülverbindungen nach festen Verhältnissen. Von Dr. Alexander Naumann, a. o. Professor an der Universität Giessen. Heidelberg: Carl Winter's Universitäts—Buchhandlung, 1872. 8vo. pp. 64.

On molecular compounds in constant proportions.

This memoir, which was published several months ago, but has only lately reached us, is an argument in favor of the unchangeable quantivalence of the elementary atoms as ascertained from compounds which may be obtained in the gaseous form without decomposition. In this theory the author finds the surest basis for explaining chemical compositions and processes, although he acknowledges that certain facts still require careful investigations before they can be satisfactorily explained, a difficulty which is readily overcome by the theory of changeable quantivalence. The deductions are drawn from a number of physico-chemical observations, mostly made within the last decade. The essay is a valuable contribution towards solving the questions of the constancy of the quantivalence of atoms and of the compounds of molecules ; it is written in a clear style, and the modern literature has received due attention.

Jahresbericht über die Fortschritte der Pharmacognosie Pharmacie und Toxicologie, herausgegeben von Med.—Rath Dr. Wiggers Prof. in Göttingen, und Dr. A. Husemann, Prof. in Chur. Neue Folge. 6. Jahrgang. 1871. Göttingen : Vandenhoeck & Ruprecht's Verlag. 1872. pp. 591.

Annual report on the Progress of Pharmacognosy, Pharmacy and Toxicology, for 1871.

This annual is so well known and has sustained its well merited reputation to such an extent that we need merely point to what we have said about several of the former volumes ; the arrangement remains the same as heretofore, and the extracts of the numerous papers published during 1871 have been made with the usual care and completeness.

Handbook of Compound Medicines, or the Prescriber's and Dispenser's Vade-Mecum. By Arnold J. Cooley. Philadelphia : J. B. Lippincott & Co. 1873. 12mo. pp. 219.

This little work is divided into two parts, part I containing formulas for pills, boluses, globules grains and granules, and part II such for mixtures, each part being introduced with the same preface, dated, respectively, London, October 1st, 1866, and May 1st, 1867. It is evident from this that the scope of the

work is limited, since it does not treat of powders, ointments, liniments, suppositories and other important medicinal preparations.

It is a good compendium of prescriptions which were in use six or seven years ago at different hospitals in Great Britain and mostly by British physicians; but it has not been brought up to the present time, and contains few formulas of American origin beyond those selected from the United States Pharmacopœia of 1860. Chloral hydrate, carbolic acid and other remedies of less importance introduced within the last few years are not alluded to; quinia pills, conveniently made with sulphuric acid, are not mentioned, and the references to the British Pharmacopœia mean the edition of 1864, that of 1867 being entirely ignored. The directions on pages 91 and 200, to employ in dispensing only so-called Russian or Turkey rhubarb, are antiquated, that variety having long since disappeared from the market.

The omission of a thorough revision of the work, which would have also necessitated the introduction of more American formulas, detracts much from its value.

Handbook of Perfumes, Cosmetics and other Toilet Articles, including Instructions and Cautions respecting their selection and use, with a comprehensive collection of formulæ and directions for their preparation. By Arnold J. Cooley. Philadelphia: J. B. Lippincott & Co. 1873. 12mo. pp 416.

The volume before us comprises chapters xvii, xviii and xix, and the appendix of the larger work, "The Toilet and Cosmetic Arts," and contains formulas and pretty minute instructions, which are of particular value to the manufacturer. It treats of cosmetics for the skin, the hair and the teeth, and of so-called waters (eaux), bouquets, extracts, essences, hair oils, pomatums, soaps and other perfumery articles; it likewise gives a number of formulas for the cure of chilbains, corns, warts, &c. The formulas appear to have been selected with a great deal of care, and the book will, therefore, be valuable to all those who make such preparations on a small scale, or manufacture them extensively. It is handsomely printed in clear types upon tinted paper.

Small-Pox: the predisposing conditions and their preventives. With a scientific exposition of vaccination. By Dr. Carl Both. Second edition. Boston: Alexander Moore. 1872. 12mo. pp. 82. Price bound, 75 cents.

This essay is written in a popular style, and is based on the theory "that the *predisposition* to small-pox consists in an undue proportion of albuminous matter to the blood-salts, and that as the result, an otherwise inoffensive nervous irritation becomes sufficient to cause the blood to part with this superfluous albumen, which, in this case, is thrown into the skin, and constitutes that condition which is commonly called small-pox;" and it is further maintained, "that a person who does not exhibit this superabundance of albuminous matter in the blood is not liable to small-pox under any circumstances of exposure or contact with patients suffering from this disorder." Among the examples cited by the author is the fearful mortality from this cause in the French army during the late Franco-German war (see page 519 of our last number), while the Ger-

man army was comparatively exempt from this disease. The author attributes this to the pea-sausages with which the Germans were provided, and which contained not only salt, but all the necessary ingredients the human body requires for health and vigor,—and to the scarcity of salt particularly in the besieged cities. On the other hand, it must be remembered that the advocates of vaccination account for the above mentioned facts by the compulsory revaccination in the German, and the want of this measure in the French army.

The author regards the facts cited by him not as conclusive proofs (except for himself), but advises that his views be tested by others, since no harm can come from them, and the experiments cost nothing.

The appendix contains an essay against vaccination; vaccine matter, except when taken from the heifer, being regarded by the author to be essentially pus. It is strange that he avers, on page 56, that statistics are very unreliable, while he attempts to fortify his own position by statistical data. The statement, on page 52, that "saltpetre is a nitrogenous combination, and consequently allied to albumen instead of its opposite, as salt," is entirely incorrect, as the two substances have no analogy, either in chemical composition or in their effects upon organisms.

The subject of the treatise is an important one, but it appears to us that if the author's views were correct, small-pox should be, if not epidemic, at least of continual occurrence in most communities, since the excessive or insufficient use of salt by individuals, or certain classes of the population, does, probably, not vary to any great extent. The theories, however, seem to deserve the careful consideration of the medical profession, and an unbiased scrutiny by physiological experiments.

Constitution, By-laws, Articles of Incorporation and Proceedings of the third annual meeting of the California Pharmaceutical Society, held at San Francisco, October, 1871. *Also the Roll of Members.* San Francisco: Printed by Joseph Winterburn & Co. 1872. 8vo. 36 pages.

We have already reported on the Proceedings of the third meeting of this Society, on page 520 of the last and on page 335 of the present volume, and have given, on page 289 of our May number, an abstract of the provisions of the San Francisco pharmaceutical law, which is printed in the appendix of the above pamphlet.

Transactions of the Minnesota State Medical Society. Minneapolis: Johnson & Smith, printers. 1872. 8vo. pp. 120.

It contains the transactions of this Society at its third and fourth annual meetings, held in June, 1871, and February, 1872.

Twenty-ninth annual Report of the Managers of the State Lunatic Society, for the year 1871. *Transmitted to the Legislature March* 6, 1872. Albany: The Argus Company, printers. 1872. 8vo. pp. 87.

The pamphlet contains the reports of the Managers, the Treasurer and the Superintendent, the latter containing some valuable observations and suggestions.

The Physician's Visiting List for 1873. *Twenty-second year of its publication.* Philadelphia: Lindsay & Blakiston.

Besides an almanac and a table of signs, it contains Marshall Hall's ready method in asphyxia; a short account of the antidotes to various poisons. and a table for calculating the period of utero-gestation. This is followed by the memorandum book, conveniently arranged for an average of 25 (or a larger number of) patients per week.

Half Hour Recreations in Popular Science. Dana Estes, Editor. No. 5. Boston: Esten & Lauriat.

The number before us contains the following interesting papers:

Nebulæ, comets, meteoric showers and the revelations of the spectroscope regarding them, by Professor H. Schellen; and coral and coral islands, by Professor J. D. Dana. If the selections for the future numbers are made as judiciously as has been done for the one before us, these "Recreations" will constitute a valuable publication for every intelligent reader.

The Half Hour Recreations are published in monthly parts, at $2.50 per annum, or 25 cents per number, and are handsomely printed upon tinted paper.

A Sketch Map of the Nile Sources and Lake Region of Central Africa; showing Dr. Livingstone's recent discoveries and Mr. Stanley's route. 1872. Philadelphia: T. Ellwood Zell. Price, 25 cents.

The publication of this map at the present time is very opportune, since Mr. Stanley's recent African journey has furnished an account of the most important geographical discoveries in Central Africa, made by Dr. Livingstone during the last six years.

OBITUARY.

Prof. John F. Frazer, aged 63 years, died suddenly of heart disease on the 12th of October, at the new building of the University of Pennsylvania, in which institution he had occupied the chair of Natural History and Chemistry for about thirty years. He was a member of the American Philosophical Society and of the Franklin Institute, and for a long time Editor of the Journal of the latter. He was a man of extensive learning and varied attainments.

Correction.—Mr. Jas. T. King requests us to correct an error in his paper published in the September number. On page 388, line 23, "five and three-tenths grains" should read *twenty-five and three-tenths grains.*

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